

EARTH GARDEN



EARTH GARDEN Building Book

Design and build your own house



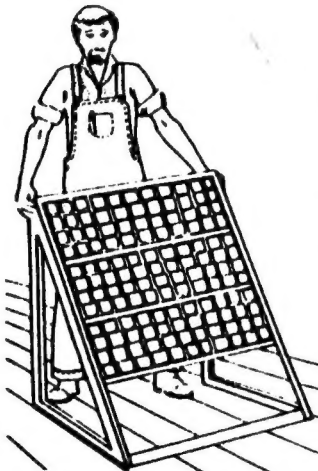
Dr Robert Rich and Keith Smith

NELSON



- Build a home food smoker •Costing an owner-built home •Leeks large and luscious •Windpower: still going strong •New slant on solar house design •Hints for winter warmth •Getting serious about self-sufficient food production •Identifying toxic mushrooms •Solar tracking •A motorised scythe •A 12V solar-powered freezer in the kitchen •Growing and using hops •Controlling fruit fly organically •Bread recipes •A letter from Keith & Irene •Earth People Write •Land Lines, Earth Garden Reviews, Unclassifieds, and more . . .

EARTH GARDEN BOOKS



ENERGY WORKS!

Home Energy Systems

By Keith Smith

Nelson, Melbourne, 1985, large format paperback, 211 pages, illustrated. □ \$19.95 posted.

Why spend the rest of your life paying someone else for your electricity? Here's how to plug in the renewable energy of the sun, wind or water using an efficient 12V or 240V solar electric system, wind generator or water turbine. Run lights, radio, TV, computers, tools and appliances wherever you live.

"The major part of this book is devoted to practical issues, hardware and actual installations.

"... This book should appeal to anyone with an interest in the supply of energy to weekenders, farms or other remote dwellings or even to the suburban household." — Dr C. J. L. Cornish of Murdoch University, WA, in *APACE WA Newsletter*.

Third Earth Garden Book

Edited by Keith & Irene Smith.

Nelson, 1981, large format paperback, 256 pages, illustrated. □ \$19.95 posted.

A collection of practical, original, human-scale methods for providing the essentials of life, with stories from New Settlers on farms and communities all around

Australia.

The Third EG Book tells you how to build fences, gates, concrete water tank, greenhouse, Coolgardie safe and compost privy; how to spin and weave, make rugs, dilly bags or baskets; how to build your house from earth, stone or timber; how to raise coloured sheep, freshwater fish or yabbies, or grow permanent tree crops and protein-rich legume crops.



The Settler's Guide Old time skills and bush lore

Compiled by Keith Smith
Nelson, 1983 (second printing), large format paperback, 176 pages, illustrated. □ \$15.95 posted.

Pioneer a bush block from 'go' to 'whoa'. How to clear, fence, square a gatepost,

whitewash, build a slab hut, a rammed earth house or a timber windpump with hand tools. Harness horses and select, sharpen and care for bush and bench tools like axes, adzes, planes, crosscut saws, mauls and scythes. Tried and true advice from *The Agricultural Gazette* of NSW, 1890-1910.



HARD TIMES HANDBOOK

Survive — and thrive!

Keith & Irene Smith
Nelson, 1986, 204 pages, 70 illustrations. □ \$8.50 posted.

This is the second, corrected edition of our practical book of skills, strategies and short-cuts for urban survival. **HARD TIMES HANDBOOK** outlines a new, self-reliant

approach to city living. It tells you how to do more with less, be prepared for food shortages and emergencies, save energy, make money without a job and manage your food supply. Make bread, yoghurt, soft cheese, candles and soap. There are 150 recipes for cheap, healthy tucker and 180 money-saving household hints.



EARTH GARDEN

Number 56 — August/September 1987

Front cover: The Earth Garden Building book — a landmark reference guide for Australian owner-builders. The common hops is a fascinating vine, even if you have no interest in brewing. A wallaby in Jackie French's vegetable patch with a fine leek specimen in the background.

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Founded by Keith & Irene Smith, 1972.

EARTH GARDEN is Australia's original journal of self-sufficiency and alternatives. It is intended as a forum of practical ideas, shared knowledge, sources and to point towards alternatives to unfulfilling consumerist lifestyles.

It's about putting a roof over your head, growing your own food, using alternative energy systems, and surviving — and thriving in the city or the bush, with the inner changes which follow when you're in tune with Nature.

Published and edited by Camille and Alan Thomas.

Book Review Editor: Sophie Masson.

Illustrations by Bronwyn Halls.

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Contributions to EARTH GARDEN are welcome — sharing information and experiences with other readers strengthens the network of Earth Gardeners.

Photos, illustrations and diagrams are important when sending us contributions.

Subscribers are sustainers — for subscription details see page 48.

We welcome advertisements appropriate to the aims and ideals of EARTH GARDEN, but reserve the right to refuse ads at our discretion. Write to us for display rates.

Printed by Industrial Printing & Publicity, 122 Dover St, Richmond, 3121, thanks to Alby, Geoff, John, Clarence and the crew.

Distributed to newsagents by Gordon & Gotch Ltd, Melbourne.

Dear readers,

Welcome to the August/September issue of *Earth Garden*. When you read this we'll be near the 'official' end of winter. For those of us in the colder and wetter parts of the country, that doesn't mean life's going to get much warmer all of a sudden. But it does mean we can start planning projects like a tree planting campaign, a summer house-building program, or establishing or re-positioning a vegetable garden. These sorts of projects are all in this issue of EG.

So this issue's suitable for tucking yourself up in front of a warm fire with a 'heat-generating body' (that's the term *Earth Garden's* illustrator — Bronwyn Halls — uses for a friendly cat on page 12).

It's frightening how time — and the seasons — can slip away from you. Last year our fruit trees had started budding just as I (Alan) was about to tackle a bit of 'light pruning'. (Camille has a pet theory that all men have a desperate urge to prune every tree or shrub to within an inch of its life). Since the days when I worked in a plant nursery I have come to appreciate the value of not pruning some trees.

Time also beat us last year with our tree planting. Camille collected seed and germinated about 300 Blackwood seedlings which had been growing beautifully and at the start of spring last year, were ready for planting out. We didn't set aside the time, so this year we're determined to get them in the ground on our bush block before it's too late.

In January this year we visited a quietly remarkable man in Camille's home town in Tasmania. Arthur Brotheridge grows (organically) an extensive and fascinating range of fruit and vegetables. You could easily spend longer than the half day we passed with him discussing different crops, growing habits and harvest times. We had first met Arthur years ago at an 'alternative weekend festival' on a farm in the hills near Cradle Mountain. There he

explained how, with skillful grafting and careful selection from hundreds of varieties, he managed to pick fresh juicy apples from his trees all year round except for three weeks over Christmas. Arthur's introductory article is in this issue and we're sure his stories will provide fresh encouragement to 'old hands' and guidance and inspiration to those starting out.

In *Earth People Write* you will notice two letters this month about food irradiation. We feel very strongly about this gross form of artificially preserving food and in the April/May issue we published a small article about its dangers. It was difficult to compress the reams of data into one readable page, but we think that readers need to know about food irradiation, before it is thrust upon us by market forces. The more of us who produce and insist on buying radiation-free and chemical-free food, the healthier we will all be.

Toxic pesticides for preserving commercial fruit supplies are probably as harmful as food irradiation and, as one reader put it, do not grab headlines in the mainstream media. We have been discussing the idea of one page per issue of small news snippets relevant to readers and *Earth Garden* subjects. We wonder if you would be interested in such a column in *Earth Garden*.

Also in this issue, as you will notice from the cover and the review on page 45, Bob Rich's and Keith Smith's *Earth Garden Building Book* is currently being released. We read the book for the first time (when it was still only in page-proof format) only two days before we wrote about it and we have tried to restrict the flow of superlatives.

This really is a magnificent book; and it's a valuable investment. I am sure that everyone will treasure its usefulness and comprehensive approach. We are now accepting orders for the book but please note that the latest information is that we should obtain the first stocks in late September. Happy reading.

Yours in peace,

Camille & Alan

A letter from Keith & Irene

1 June 1987

Dear Alan & Camille,

We're just back from a visit to Soviet Central Asia and the Caucasus, places with fascinating history and traditions of self-reliance through the centuries. The highlight was Samarkand (now in Uzbekistan Soviet Socialist Republic) with its beautiful ensemble of turquoise-tiled madrassahs at the Registan (15th—16th centuries), the Bibi Khanym Mosque (1399), built by the brutal conqueror Timur-the-lame (Tamerlane), his grandson Ulugh Beg's Observatory (1429) and the Gur-i-Mir (1404) where they both lie buried. All these buildings, domes, minarets and arches really are constructed of small mudbricks underneath!

We also loved Tbilisi in Georgia for its old city of stone churches with drum towers and its cosmopolitan Rustaveli Prospekt lined with shops, cafes and restaurants, but most of all for the fiercely proud Georgian people. We found the May Day parade of families and young people in sunny Leningrad (25 degrees C!) just like the Palm Sunday peace march here in Sydney.

Congratulations on *Earth Gardens* 53 and 54. It's marvellous for us to see EG continuing and coming out more regularly than we could ever manage! We can see the improvement in layout and presentation and the useful mix of practical articles as you start to feel at home with the job. "Keep up the good work", as we've been told by hundreds of readers in the past.

After our travels, we are back at work on our new project (which might surprise readers). It is to be a comprehensive guide to Sydney, with a bias on its rich history. We love our city and find the research and exploration involved in putting this book together fascinating. We plan to publish *Smith's Guide: Sydney* ourselves and hope to have it in print around October 1987.

Our daughter Melissa is now officially a teenager (she turned 13 last week). All three of us are happy and well. We hope *Earth Gardeners* everywhere (city or country) continue to survive and thrive.

Peace & love,

Keith & Irene

Keith & Irene



Earth People Write

Letters to Earth Garden from readers are *always* very welcome.

Dear Earth Garden readers,

I am wanting to compile a list of distributors of solar, wind and water power devices as well as low voltage systems and gadgets throughout the Pacific region and Third World countries. Please forward this information to: Peter van der Wyk, c/- Nimbin Neighbourhood Centre, New South Wales. Thank you, **Peter Pedals, Nimbin.**

Dear Earth Garden,

I guess our dream and plan is much the same as many others — our own 25 acres. We know that this is not achievable for us until 1995 when my husband's superannuation is due. In the meantime, at the beginning of 1988, having resigned our public service jobs, we'll be heading bush. Can anybody offer us:

a) caretaking duties with some land to use b) a share of your land for our work, low rent or share of profits.

Our preference is North of Kempsey along the New South Wales or Queensland coastal strip, but we are open to suggestions from any area.

I still use nicotine, we eat meat, garden organically, have two bee hives and have built a solar greenhouse. We wish to enter into long term rather than short term arrangements and who knows, we could find something in 1988 that could become permanent. Yours sincerely,
Carolyn, PO Box 241, Woden, ACT, 2606.

Dear Camille and Alan,

I wish you both success in

your new venture. I am interested in the possibilities of building with mudbricks but have been told that the ground in the Sunshine Coast area of Queensland, where I live, is not suitable for this type of construction. Are there any readers of your magazine who have opinions on this matter? If so I would be pleased to hear from them. Where can I get the following books and at what price? *The Owner Built Home* by K Kern, and *The Owner Builder & the Code* by K Kern?

Paul Alexander, PO Box 604, Maroochydore, QLD 4558.

Dear Paul,

This was a good issue to write in with such questions. The answer to all your questions is in the new Earth Garden Building Book!

—Alan.

Dear Alan and Camille,

I have just read my first of your books and love it, showing it to friends and will be sending copies to New Zealand. Yours faithfully,
Pauline Pierce, Orelia, Western Australia, 6167.

Dear Camille and Alan,

Have you any information on how much cement to add to a mud mix as I feel the mud I have to make my bricks is a little too sandy and it is nearly impossible to import or find clay in my area.

Thank you for a great and informative magazine.

Gavan Egan, Pearl Beach, NSW, 2256.

Dear Gavan,

Again, the answer is in Bob and Keith's book.

—Alan.

Dear Camille and Alan,

My wife and I are followers of *Earth Garden* magazine and have been for a number of years, and we find many articles of interest to us within the magazine's pages.

We have built a new home at Blackbutt around 115 miles north west of Brisbane. The home is on metal stumps, to our own design, (including its faults), has polished cypress floors, wallpaper, lots of tiles, a no 2 Crown wood stove for cooking, and HWS, gas fridge, and 12V solar power for lights (fluoros), and TV — also a Norwegian Trolla wood-burning room heater).

The whole set-up works well except for the TV, which suffers from interference from the fluoros. Apparently small inverters are incorporated in the fluoros to bump up the 12V to ignite the tube, and these inverters are causing interference on the TV screen, such as diagonal lines and blips.

We watch TV quite a lot and find this to be quite an annoying problem. The TV is a K-mart *Princess 12"* black and white set, and maybe other sets do not suffer the same problems, however I wonder if anyone else has this trouble, and what to do about it.

I've written to Peter van der Wyk, but he has no answer as yet to the problem. Can anyone out there offer a solution to our problem? Needless to say the problem occurs at night only, but perhaps others have had this trouble

also, and may know a remedy.

I can't recall ever having seen this problem being commented on in *Earth Garden* at any other time, so maybe the cure (if there is one) will help others too.

We have an orchard of mixed trees, bees, and quite a nice garden coming on. My wife Patricia is the one who has green fingers, and also does 95 percent of the work. We use only animal or chook manure, and probably feed dozens of hares and other wildlife and birds with our fruit when in season.

We find the peace of the country soothing, particularly at night when you can have a good sleep without the wail of sirens or noise from cars as they pass by in a never ending stream. Also Blackbutt is on a par with Toowoomba as far as climate goes, in fact rather similar to say — Omeo in Victoria, and also has occasional light snow. So it's good for all stone fruit except cherries; also apples, pears, olives, lychees, custard apples, almonds, figs, and all citrus varieties. Mind you, summer is at the other extreme.

As a further point of interest, our Premier the infamous Sir Joh BP, lives about 30 miles away*. Also Blackbutt is one of the main seed gathering areas for the Forestry Commission's native tree nurseries.

Well that's all I can manage for now. Sincerely,
Barry Mallett, Blackbutt Qld 4305.

*Lucky you.

Dear Camille & Alan,

This is just a short note to ask a favour of you. I would like to get some copies printed of the food irradiation article in EG no 54. I have been talking to people here in South Gippsland and I would like to stick the article onto the local public noticeboards, so I am writing for your permission to be able to print them up.

While I'm about it, would it be alright to run off a copy of Chief Seattle's Reply to stick on my wall. I found it very stirring and I believe more people should read it. Thank you for your time and effort and I am sure you

will be well rewarded for the work you are doing for *Earth Garden*. Yours in faith,

Daryl Reeves, Inverloch, VIC, 3996.

Dear Daryl,

We are thrilled for you to copy Chief Seattle's Reply and the food irradiation article in EG 54. Any other Earth Garden readers who wish to do so are very welcome.

—Camille.

Dear Camille and Alan,

In EG 54 Helen was asking for methods of drying apricots. We also dislike the idea of using chemicals, and tried a homemade solar dryer, but in our WA summer this seemed to dry the fruit too quickly, turning it dry and hard. We have since settled on the following method.

Halve and stone the fruit. Blanche in boiling water for approximately 1 & 1/2 minutes, making sure the fruit is still firm. Dry by placing on flyscreens raised on stands with another flyscreen on top. This method takes approximately 1 day longer than the solar dryer — 3 to 4 days, but gives a better product. We've had no problems for the past three or four years.

Now can anyone help us with our problem? For sometime we have been wanting to make our own Swedish bitters, but have been unable to locate three of the herbs required: Zedvoary, Theriac Venezian and Carline Thistle. Hoping someone can help us. Best wishes,

Keith and Betty Roebuck, 21 Smith St, Glen Forrest, WA, 6071.

Dear Alan and Camille,

The binders for EG will be welcomed. Our early editions are looking quite ratty but there is just no impetus to do anything about it. You definitely have a standing order from us for them.

It's been very cold up here with frost around the house for the first time this year. Only -1 at the house but this means -4 in the orchard lower down the valley. Even with the short days and cloudy weather our solar panels are

keeping up with the demand. Getting rid of the wind generator was the best thing we ever did. Hope the people who bought it from us got good value.

We are going to have a go at building our own concrete tank, from the instructions in an early EG, some time in the spring: our 10,000 litre tank that has been in for eight years is looking a bit rusty from the dam water. Will let you know how it goes after testing. Peace and happiness,
Chris and Rhonda Martin, Coonabarabran, NSW.

Dear Sir or Madam,

My husband and I are hoping to build a mudbrick house. We are trying to find out as much information about mudbricks as possible. So far all we have is a small pamphlet. As this is not very much to go on I am hoping that you may be able to help us.

We would also like some information on a brick press; also the cost of a press. I hope that you can help us. Thankfully yours,
Mrs V Willett, Cathcart, NSW.

All we can say is: 'see above' (the new book).

—Camille & Alan.

Dear Earth Gardeners!

One of the beautiful aspects of a magazine like this is that through it, you and we can share experiences, ups and downs, and therefore have the possibility of helping each other. Sometimes it's quite trying doing everything on your own. So far we have battled alright. Five years ago — freshly immigrated from Old Germany with about \$14,000 to our name — no friends or relatives here — we put just that amount down as a deposit on a beautiful 560 acres. This was only possible because we ran into this 'old' farmer who agreed to vendor finance us on the balance of \$56,000 over five years. We managed to pay off \$38,000 — plus the interest per year on top of fixing up fencing, buying a tractor, implements, generator, solar system, bulldozer, 17 head of cattle plus one

bull, building a sawmill and some sheds and a house.

This all happened on weekends while we worked like crazy in Sydney for the necessary cash. We made it up to the property every second weekend — a round trip of 800 kms. We had our set-backs — yes. We tried growing eight acres of potatoes and five acres of corn, and failed when the cattle got through the fence and had a good feed, not to forget the wallabies.

Of our 33 avocado trees the cattle managed to chew off all but three. Thirteen survived. Last year we lost three cows and calves through calving problems and illness, which meant no profit on our little herd. Our old farming friend saved one cow and calf and kept an eye on the place, but the weekend farmer situation was not good enough. Half a year ago we decided to try the jump to live up here permanently.

Deepam's contracting business promised to work out up here as well as in Sydney, Vera finished school and started in the College of the Arts and I sold my taxi-share. A few months later things started to go downhill. Deepam's contracting isn't working out as well as expected thanks to the 'omnipotent' computer. So now we're in strife financially — with \$18,000 to go till January '88!

So we decided to subdivide 170 acres off — a block which is separated from the rest by a gully and stream. Well, we're too late: a new law requires the minimum size for rural subdivisions to be 250 acres. What now? We are hesitant to offer the 170 acres on a share basis because of all the possible hassles that are prone to arise. So we would like to offer them to somebody on a rent basis — somebody who is genuine and who just can't afford that block of their own or who feels hesitant about committing themselves for a long period of time to pay off some big mortgage.

There is potential for market gardening and herbs on the block. We can help with building, clearing re-growth etc to a certain extent. So if you

feel this is a possibility for you and are prepared to babysit our two cats, dog and chooks, horses and plants while we head for Sydney from time to time to get the necessary cash to pay off the rest of the property, drop in for a face check. We will decide on heart-value. The place is 10 km from Comboyne.

Dhiren and Deepam Howarba, 'Bimbala' Pomford Rd, Comboyne 2429. Phone (065) 50 4148.

Dear Earth Garden,

Congratulations on your *Earth Garden*. I look forward to seeing it each two months now. Thank you for my favourite magazine. Regards,
Pat Smith, North Balwyn, 3104.

Dear Editor EG,

I have just read the April-May issue of *Earth Garden* from the local library. I must make a comment on the article on irradiation on page 36. You fall into the usual trap of the scare mongers by not getting the latest facts right. Your reference to a 1972 test is equal to saying that the modern motor car is not much good because a 1972 model was proved a dud. It reminds me of the test that was undertaken to prove that an artificial sweetener caused cancer in rats, which it did. But translated into amounts used, it worked out that a person would have to drink 302,000 cans of coke per year for several years to ingest the same amount. The test was total baloney.

To make your condemnation have any semblance of credibility it needs more than 'somebody said' or, 'according to a writer'. The story published up here was that the Federal Government legalised but did not approve of it and the only State that was going to use this was Queensland.

So I would say it would be more appropriate to write to Sir Joh, the one who approves of it. Also, there are worse things people are eating and not knowing about, like DDT sprays on crops, and the dipping of bananas in weak weed killer to ripen them, but then these things are not headlines.

Cliff Barron, Ormeau, Qld, 4208.

Dear Cliff,

We share your concerns: the use of toxic chemicals on all foods, and especially to retard — and later ripen — tropical fruits such as bananas, is revolting. Obviously, the little extra cost for organically grown and home grown produce, is worth it, and is important while we are bringing pressure for change.

If the only evidence against food irradiation were one 15 year old study, then the arguments would not be sound. Fortunately, there are mountains of data by world-respected researchers on the potential hazards, but space limitations prevented us from listing references, although we did mention the WHO, and the world-renowned Science journal.

—Camille & Alan.

Dear Earth Garden readers,

I would like to hear other people's experiences of community living with reference to group dynamics and cohesiveness and individual privacy.

Please let me know what works well for you; what are the pitfalls; and information about the general set-up of the community. I am keen to hear advice from those who have been before me, as I'm now looking around for a community. With love,
Lea Holland, 9 Jasmine St, Lismore NSW, 2480.

Dear Camille and Alan,

I have just finished reading EG No 55 and feel I must tell you I had the article on cider photocopied and am sending it to my sister in England, who I am sure will take a trip to Hereford to see the cider museum. When I visited England in 1981 I asked my sister and brother-in-law to take me to the alternative technology display in that unpronounceable place in Wales . . . If anything I think they enjoyed the outing more than I did and a trip to Hereford would be just a side trip to one of her regular visits to the Forest of Dean to tend our parents' graves. The second thing I must tell you: I think \$30 remarkably cheap for materials for that

cradle, but I have looked at the photo on the front of EG and I have compared the size of the baby's head with the gap between the dowelling at the ends of the bed and it seems to me an adventurous young sprout could get their head wedged between them. But why go to all the trouble and expense of building a cradle when you can buy a string hammock from the disposals store for \$10 and rock the baby the Amazon Indian way?

Another item that brought back memories was the article on making a sun helmet from coiled grass. I recall reading many years ago about a rope walk: you used the long straw from the grain fields and made for the job a device something like a carpenter's drill with a hook on it (not a bit). Then one person turned the tool while the other person walked backwards away from them with a bundle of straw under one arm feeding it out with the other hand while their mate twisted it into a rope.

You then coiled it into a big mat, sewed it together and you had a comfortable mattress. As you may know it was the custom in Medieval days to put fresh straw on the church floor each harvest time. I just wonder did they go to the trouble to turn it into rope and coil it into mats. Last year's straw was given to the villagers for use in their homes, so I think perhaps they would have done!

The other thing that interested me (bear with me and I will soon be done) was the word fluoride. Now, people who favour flouride claim it is good for teeth, and those same people would have you believe that sugar is bad for the teeth. Yet they persist in adding flouride helter-skelter and willy-nilly to our drinking, bathing and bathroom water supplies. Not only is this wasteful of flouride, but it is forced upon us. Why not add flouride to some packets of sugar? But not all, so that those of us who want it can get it added with the food item thought to cause dental cavities?

I say though, I have had very little trouble with my teeth since giving

up sugar in my tea, yet not giving up my lollies (I am a smoker) and I still have most of my teeth at 63. Shortly I will be leaving this perishing cold here in NSW, for sunny Queensland. I have no idea where my next home will be, but one thing is for sure — winters there will not be freezing. All for now, love to everyone. Yours truly,
John Guest, Coonamble, NSW, 2829.

Dear John,

It's nice to welcome you back to EG, but I don't know about your fluoride theories. Hope you're not eating too many lollies.

—Alan.

Dear Alan,

Generally I am pleasantly taken by the new dynamism you bring to the publication. It would seem to be an example of the new 'formula' I see as vital to a satisfying life, which is to create your own job and market through an innovative approach rather than cling to a shot in the system with a security-conscious approach.

In fact I would say that the alternative lifestyle is more about this than it is specifically about living in a rural setting. (The new pattern of economic organization, in the context of an oppressive world order, is a sort of pet subject of mine). And the central thing is that you can't fake it — you really have to consult your feelings as to what you want to do, and start from there, whether or not you can see a profit in it immediately.

And as a corollary to this, whatever you really feel worth doing will always involve a relationship to others — a 'market' of some sort — a group or type of person that you wish to serve in some way. This is subtly but importantly different from basing your life on the wish to get away from something, which is a negation of relationship. That was part of my own motive for 'going bush' (16 years ago) — to get away from the rat race — but that aspect of my motivation has not ultimately brought happiness. It creates constriction somehow, which diminishes hap-

piness. I'm still in favour of 'going bush' but it should be a step toward something — adjusting your environmental factors to enable you to better take up your desired work, to release your creative enthusiasm and thus find the very avenue of service which is 'you' and which therefore connects you to the people (and animals and plants) that you want to give something to. Down that road does lie happiness.

I hope philosophical comments such as the above are not 'off limits' in the pages of the new EG.

I really believe it will be attitudes and realisations that will save us in the next 10-20 years more than quantities of food etc available. Very best wishes,

Thomas, Tallebudgera Valley, QLD.

Good on you Thomas, —Camille.

Dear Camille and Alan,

Have just picked up the April/May issue of *Earth Garden* from my local newsagent. Thank you both very much for keeping up the good work.

I have a query which you or your readers may be able to help me with. My daughter-in-law Meaghan and I have been growing lots of herbs and we have started drying them.

I find that our basil, when dried, doesn't smell anything like the commercial dried basil, nor does our oregano or marjoram. Most other things, like sage, lemon grass, tansy, eau de cologne, etc have the right aroma.

Also is there any use for dried comfrey leaves, I would like to get a good book on growing and keeping our herbs, but all the books we have are not really specific enough.

Meaghan makes tinctures from our herbs and we find them very useful. We worm our animals with a tincture of wormwood and treat our winter colds with a tincture of ginger root and garlic or horseradish root: a mean potion, but effective.

Looking forward to further editions. Sincerely,
Melva D Robertson, Moroya NSW.

Dear Camille and Alan,

Congratulations on continuing the wonderful *Earth Garden* magazine. Each edition has surprises and many innovative ideas. I feel it would be most valuable for readers if you had a calendar of upcoming events, for example field days, festivals, open days and exhibitions.

In the April/May edition on the front cover your top headline was 'Alternative festivals in Southern Australia'. I presume the article by Bob Rich on the Moora Moora festival and the pictures of the confest were these alternate festivals. I was hoping to see a list of festivals past and present and future in an article on alternative festivals. I hope you consider this request worthwhile and can squeeze it into somewhere in the magazine. Best wishes,
Gillian Summerbell, Hornsby, NSW.

Sorry that our headline was a little inaccurate.
—Camille.

Dear Camille and Alan,

We were heading to Cairns (read EG 55) but found we liked the lifestyle in Malanda much better. It's a cold, wet area (dairy country), good volcanic soil for the garden and all types of people in this tiny town. We've set up our fridge-freezer rubber replacement business (see unclassifieds) and the vegies are planted, the hen house half done. We have 1/4 of an acre, but after reading alternative lifestyle books we may be at an advantage to the bigger blocks (except for cows etc). We certainly feel we can survive quite well on a small block. There are lots of fruit trees we haven't seen before and we're learning a lot up here. Folks don't be frightened to venture up this way. There is a place called 'Tinaroo dam' with free camping along its banks — a bit hard to find (it's not far from Atherton). We've just spent two days there, free firewood and there's toilets but no shower.

I notice not too many places in EG are for sale in these areas. It makes

you wonder why? I thought the recipes in EG 55 weren't healthy at all — sometimes old things aren't better. Peace and happiness to you,
Rowena Mahe, Malanda, North Qld.

Dear Earth Gardeners,

In reply to Christine Lehmann (EG55), 'Carbonate of Potash' is an old version of the chemical name potassium carbonate. It may be difficult to obtain this substance from hardware stores. It should be available from chemical suppliers, but the cost would probably be prohibitively high. Usually potassium and sodium compounds are interchangeable, so sodium carbonate should be an acceptable substitute. Sodium carbonate can be purchased cheaply as 'washing soda', at supermarkets etc.

Caustic soda would not be a good substitute, it is much more alkaline than the carbonates. Yours faithfully,
C Pipe-Martin, Murgon Qld.

Dear Mr Thomas,

I have received numerous enquiries regarding my share for sale in Dorriggo thanks to the advertisement in your magazine. I am happy to say I have found a buyer and wish to discontinue my advertisement. Thanking you again,
Roger Bruyn, Collaroy, NSW.

Dear readers,

My family and I are getting more and more concerned about the prospect of possible food irradiation. Just a few facts:

1. Experimental evidence points to detrimental long term health and genetic effects, and suggests concern about the high irradiation level proposed by Australia.
2. It can create cancer-forming substances in foods and lowers the body's defences through the destruction of vitamins.
3. The resulting importation of irradiated cheap foreign foods from countries with questionable safety standards, will be to financial

detriment of our own food producers.

4. The current irradiation labelling proposals are vague and rob us — the consumers — of our democratic right to make a choice.

I'm sure lots of readers share our concern. Why not express our opposition to it by writing to local food outlets, local, State and Federal Government bodies? Want to know more? Get all the information from:
Awareness Education, PO Box 82, 50 Stirling St, Perth, 6000.

This is run by Chris and Karen Papadopoulos. Maureen and Ray Barker are travelling around Australia to inform people about the danger. We've been to their lecture and thought it was very educational. If they are in your area and you want to organise a meeting I'm sure they will be most happy to do so. Let's do something for the health of humanity in general and our own kids in particular. Love and peace,
Wim and Let, Goombungee, Qld.

Dear Sir,

I found a copy of *Earth Garden* in the park and it seems to have information I seek. I am interested in growing by organic methods — vegetables mainly as I am controlling leukaemia with fresh vegetables, and have a fairly short growing season. I am therefore interested in solar heated structures, preferably no more than 3 to 4 feet high with moveable sections in the roof and access therefore for weeding, watering.

I can make compost, but there must be better ways. I would like information on fruit drying on a solar arrangement in the home but not large as a commercial setup.

Could you please send me information in the post as to what issues would cover these points and cost. Yours faithfully,
D Stirzaker, Fitzroy Falls, NSW.

Dear Reader,

Back issues of Earth Garden numbers 12 and 31 cover these topics.
—Camille.

Garlic and onion chives

"There is in every cook's opinion, No savoury dish without an onion, But lest your kissing should be spoiled, The onion must be thoroughly boiled." So said Jonathon Swift.

by Liz Sinnamon

'Elizabeth Herbs' farm, Nambour, Queensland.

ONION and garlic chives are invaluable in the herb garden, both as an aid to total health, and also as a savoury addition to many dishes.

Onion chives when young, resemble tufts of fine grass, but as they mature, the leaves become circular and hollow with the distinct taste of onion. The mauve flowers, which appear in summer, are made up of thick knots of cylindrical petals, forming round heads.

Garlic chives look very much like onion chives when young, but as they mature, the leaves become broad and flat, the colour is a light green and the flavour is characteristic of garlic, but much milder. The white star-like flowers appear in summer at the top of long round stems which are tough and not suitable for eating. Both varieties can be grown from seed, although propagation is quicker and easier by division of established clumps.

Chives belong to the same family as garlic and shallots, and are a native of Britain. They also grow wild in rocky pastures in Europe. Seed can simply be sprinkled thickly where they are to grow permanently, covered with a fine layer of soil and thinned out to smaller clumps when about two inches high. Alternatively, they can be sown in seed boxes and cut into two inch squares when a few inches high and planted in the garden.

Chives are heavy feeders and thrive in a fairly rich soil. Before planting, dig in a large amount of well-rotted cow manure, some chicken manure and as much compost as you can spare. They will produce well for up to three years if mulched regularly with pulverised rotted cow manure. When clumps become five to six inches in diameter, divide into three. If you don't the centre of the clump will die out due to lack of nourishment. Replant in another area of the garden or give the excess chives away to friends and relatives.

Culinary uses

Chives can be used in almost every savoury dish. Before I serve out the evening meal, I always gather a few chives to chop and sprinkle on. Chives are delicious on potatoes cooked in their jackets with a pat of butter, sprinkled on green salads, added to egg dishes, cream cheese dips, fish and poultry mornays, savoury sauces and mayonnaise.

Medicinal

Chives contain, among other valuable constituents, iron, pectin, and sulphur, and are a mild natural antibiotic. They



Chives: essential in a herb garden for good health and delicious food.

help to strengthen the stomach and combat high blood pressure and have a tonic effect on the kidneys. Chives also reduce the indigestibility of fats in food — a boon to those cholesterol level watchers. They also stimulate the appetite.

Cosmetic

Chives are a source of calcium which help strengthen the nails and teeth, always an important factor in achieving natural beauty.

Companion planting

Grown near the roots of apple trees, chives will help reduce scab. A chive tea made into a spray is helpful in combating downy and powdery mildew of gooseberries, cucumbers and zucchinis, and have a beneficial effect on carrots when grown nearby. Onion chives grown under your rose bushes will help combat aphids! When cut up and mixed with the feed of very young turkeys chives are said to be very beneficial.

To harvest chives, cut down right to the soil level — they will grow back in three weeks, although growth will slow down during the colder months. Depending on the needs of your family, plant at least a dozen clumps to begin with, increasing this by division to about 25 plants. Chives are one of the most useful herbs in the garden and a must for anyone interested in good health and delicious food.

The motorised scythe

by Erle Bartlett

Hartley Vale, New South Wales.

IT WAS a common sight in the 1940s or 50s to see an Oxford Scythe at work in suburban Sydney, and council staff often used them for mowing footpaths and reserves. They were also used by smallholders for a variety of jobs where a tractor was not available. With the popularity of smaller and more manoeuvrable rotary mowers in the 1950s, Oxford Scythes faded from view, to the outskirts of the city, and into back sheds. A pity, because they can be a most useful tool in a number of situations.

Oxford Scythes mow grass with a sickle bar action, the same way a shearer's hand piece or a barber's clippers work. The width of cut is usually three feet, but you may find one with a three feet and six inches or even a four feet blade. The blade severs plant stalks close to the ground and as the machine moves along, the big wheels roll over the cut grass and lay it down away from the cutting blades so they do not get clogged with grass.

Oxford Scythes are usually powered by a Villiers two stroke engine of about five horsepower or sometimes by a Villiers four stroke engine of about the same size. This gives ample power for the cutting action and self propulsion. In fact, the machine will pull itself up remarkably steep slopes with little effort!

Like other Earth Gardeners with a small orchard, I found I wanted a large mower for grass and weed control and instead of buying a large rotary mower, I found myself with an Oxford Scythe and discovered I had a machine that could do more than I had imagined.

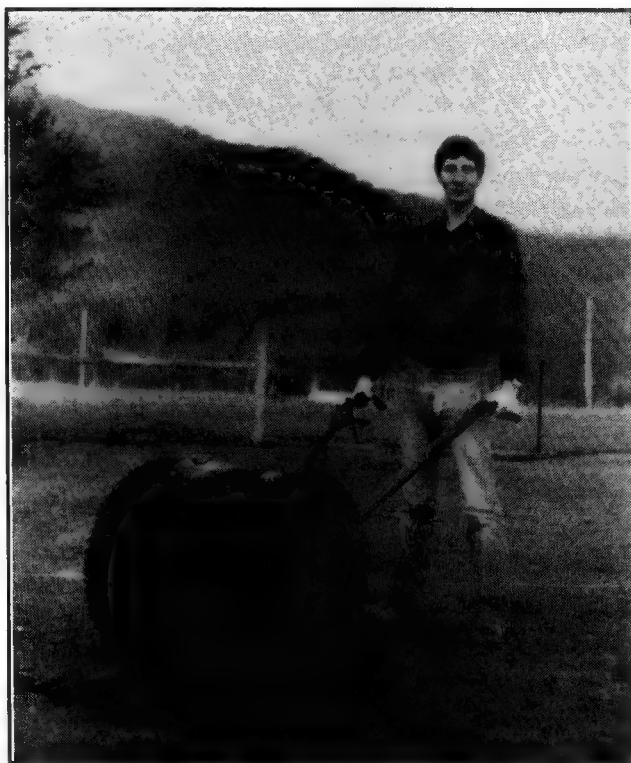
The following are some of the uses I found for it.

Turn grass into lawn

In a half-acre orchard keeping grass down with a little rotary mower is quite a task. Using an Oxford Scythe with its three foot cut halves the time you spend and, because it will cut such long grass, you can let the grass get much longer before you have to go out again. If you want to cut a close lawn from long grass, the Oxford Scythe will reduce the length of the grass quickly to a size that an ordinary mower will handle easily.

Turn grass into feed

If you use the 'cut and carry' method, a small cultivated patch of feed like oats or lucerne can be progressively cut with the Scythe, and fed to your animals without them trampling all over the feed while it is growing. Because the Scythe makes a single cut through the stems, down close to the ground, there is very little wastage and the cut feed is easy to handle



Erle uses his Allen Oxford scythe to great effect in the orchard.

with a pitchfork or wide rake.

The same feed can be turned into hay for later use. The Oxford Scythe cuts fodder crops exactly the same way as a tractor mounted cutter and you can use raking, handling and storage methods suitable for smaller scale hay making to suit the volume you deal with.

Turn grass into mulch

All the cuttings from the orchard get heaped around the tree bases as a mulch. There usually isn't sufficient grass to mulch all the trees so a few passes along our frontage to the 'long paddock' (and the neighbour's too) yield much more. The extra long grass can go through our chaff cutter if we want it in smaller lengths, and any excess can go into the compost heap.

Turn grass into straw

After the long grass along the road or in the paddocks has seeded and lost its goodness and has 'hayed off', I cut it and use it as straw in the goats' and calves' yards—they add their fertiliser and the fowls have a great time scratching about in it. Again, when its usefulness is finished there, it makes a great mulch around the fruit trees or as a source of fertiliser in the garden.

Turn grass into money

In many cases the Oxford Scythe can cut as well as a tractor slasher, and in some cases even better because it is more manoeuvrable. There is no reason why you shouldn't take on mowing or gardening jobs using your Oxford Scythe. Once you own one you realise just how adaptable they are.

The disadvantages

Probably the biggest disadvantage to an Oxford Scythe is its age and the wear associated. The cutter blades are subject to most wear but you can get replacements for these from agricultural machinery suppliers without much trouble. You could also cut and adapt the blades from old tractor-mounted mowers to suit the Oxford Scythe. The pneumatic tyres and tubes are a common motorcycle size so there is no problem there. The gearing and the casing are well made and provided they have been lubricated all their lives, should present no problem.

The biggest problem is the engine. Unless you have a good source, parts for old Villiers engines are hard to come by. I haven't tried, but it may well be possible to fit some other type of two stroke or four stroke in place of the Villiers to overcome parts problems.

The other problem is its size and weight. While these provide tremendous stability on rough surfaces or steep grades it means you can't pick it up and put it in your boot. You need a trailer or a big tray on your vehicle and a sturdy ramp if you want to move one about.

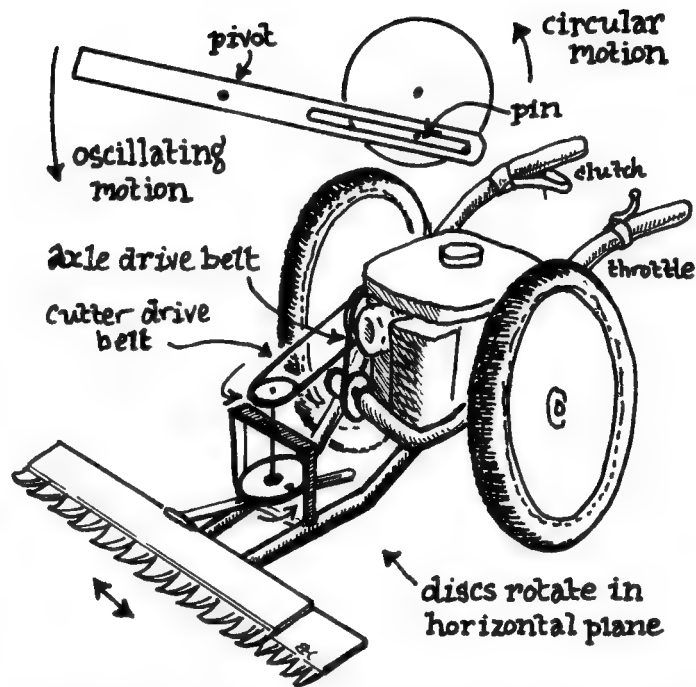
Where do you get it?

If you hang about at auctions or clearing sales long enough you will probably find one. A better prospect is to advertise, either in the local paper or in a *Trading Post* — these can bring a number of responses fairly quickly. The price you pay will of course depend on the Scythe's condition. If you're prepared to do lots of repairs then \$50 should be a good price. For \$500 you can get a machine in top running order and see it running before you buy it. Anything in between may be a bargain or a bomb, so remember the points to check for wear:

- cutting blades
- tyres
- gears and lubrication
- engine.

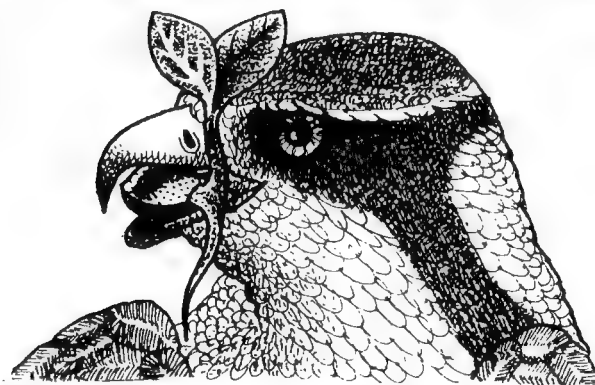
Make sure everything moves and assess it for yourself.

The third alternative I suppose is to barter. I have a spare one in my back shed and I'm after a woodturning lathe — any takers?



The simple and efficient design is an important feature of the Scythe, but Erle thinks it would be difficult to build from scratch — any volunteers?

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Ten hints for frugal winter-long warmth

by Jackie French

Braidwood, New South Wales.

IT'S ONE thing to generate heat in winter, and another to hang onto it. In theory our own bodies generate enough heat to keep us comfortable as long as we can stop that heat from dissipating, either by protective clothing or modifying the space around us to stop heat loss.

The following are hints for frugal heating — relying on conserving heat rather than producing it.

1. Find out where your heat is going. Go around your house room by room with a candle. Make sure all doors and windows are shut. If the candle flickers there's a draught — air coming in and heat escaping. Follow the draught to its source and correct it.

The most common source of draughts is illfitting windows and doors. Make yourself an old fashioned door snake, a long material tube filled with dry sand or sawdust, to block out draughts under doors. Buy a sealing gun at the hardware store, and go around window frames or any other crack that needs sealing. Nail beading onto doors if they're particularly illfitting and seal your room as well as possible. 2. Check your floors. Unless you're on a concrete slab there's probably considerable heat loss from your floor, and possibly cold air rising too. I once lived in an elderly place where the mats on the floor visibly lifted with every gust of wind, yet the floorboards looked quite solid. There were no gaps obvious until you ran your hand over them and felt the draught.

There are lots of options for floors. Tack on insulation underneath if you can, or extra flooring boards, even plywood, to create an air gap to insulate under your floor. Wall to wall carpet is an expensive option, but a large mat in the area most used in winter serves as well. Every autumn line the mat with several thicknesses of newspapers (additional free insulation) which should be thrown away in spring, or at least renewed.

3. Check your ceilings. Hot air rises, so most heat can be lost there. If there is no insulation in your ceiling put some there. Again, old newspapers if you're desperate, and willing to change them often, but these can be a fire hazard and rats and mice love them. Old woollen carpets, secondhand blankets, in fact wool of any sort, whether elderly jumpers or straight from the sheep, makes effective, reasonably fire retardant insulation.

Another idea is to get some old polystyrene boxes

from the supermarket, crumple them up and put the residue in garbage bags, and line your ceiling with those, using them as you would normal insulating batts. These can also be a fire hazard. Polystyrene made specifically for insulation has been coated with a fire retardant chemical.

Garbage bags can even be filled with foam rubber pieces (the foam gives off toxic fumes when burnt so beware of fire), or a thin layer of gravel (if you're desperate and you think the ceiling will take the weight). I know of a house where old large tins — good and reflective — were stapled together, then placed in the ceiling cavity, creating an excellent air gap for insulation.

4. Watch your windows. Double glazing is out of the question for most of us but curtains trap heat. Reflective curtains are even more effective and double curtains are within anyone's range if you line them with cheap second-hand blankets, or any material you can buy cheaply. Pull curtains at night, pull them back as soon as the sun hits them.

5. Bodies generate heat, so the more bodies the more heat. If you really want to be frugal try to concentrate winter activities, including cooking, in one room. Eat where you cook, and relax there afterwards too.

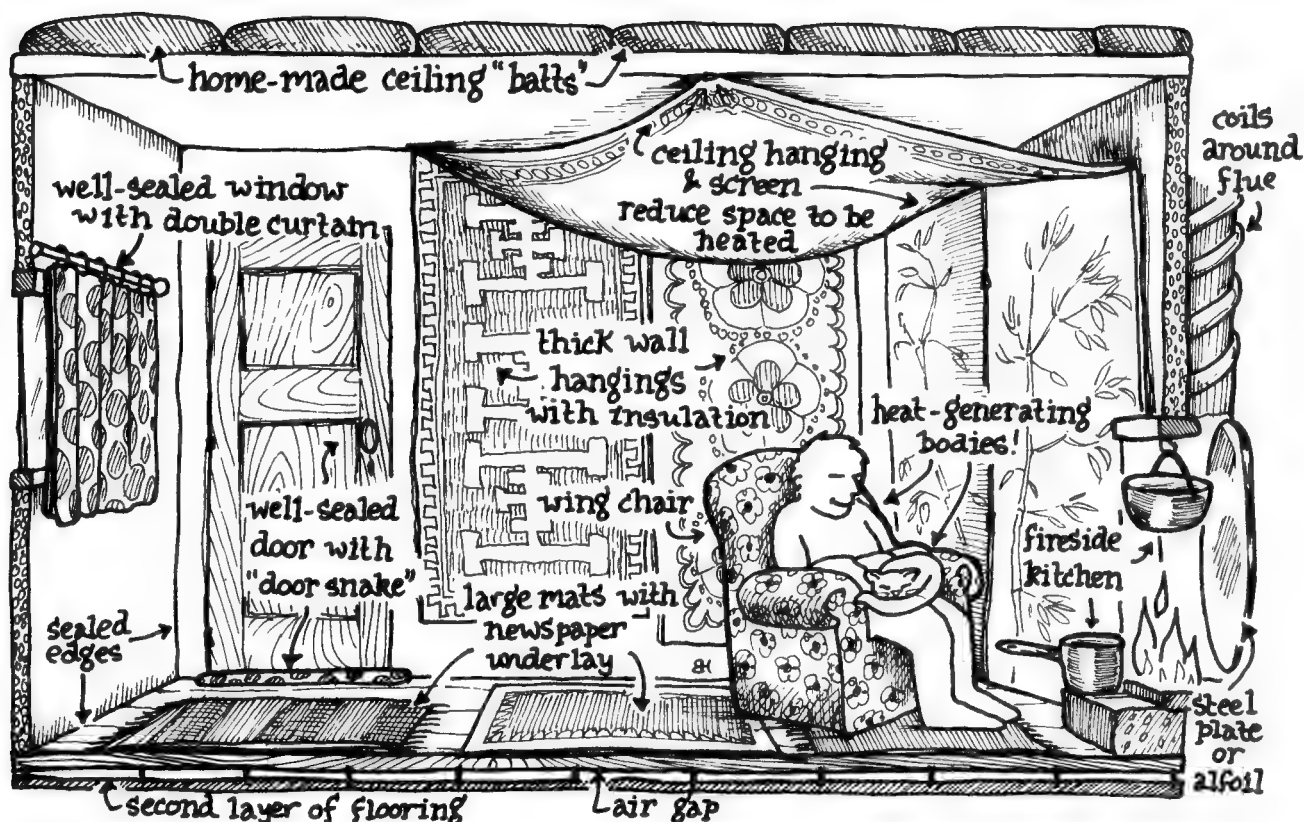
6. Keeping in mind that people will soon warm up a room, or at least keep it at a comfortable temperature if it's well insulated, arrange your heating to make a room warmly welcoming. Then you can reduce the heat and rely on insulation and people heat to maintain it.

7. Think about making your large spaces temporarily small for winter — smaller space means less heat to warm it. Old

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fashioned wing armchairs were a good way of collecting and keeping the heat from the fire.

Remember too that heat rises: you may wish to lower your ceiling temporarily with materials such as wall hangings to stop the hot attic/cold kitchen syndrome.

8. Don't send heat up the chimney, reflect it with a steel plate at the back* — or even alfoil a bit further back. If you have an open fire maybe it's time to think about putting in a small pot belly with a flue. A cheaper flue can be made from a 6 gauge tin pipe. In the short term there would be a lot more heat in your house and in the long term, savings in wood and labour. Put coils around the flue to radiate more heat.

9. Go medieval — add insulation with tapestry or wall hangings on the walls, go modern by backing them with alfoil or other insulation. (Another medieval solution to the heating problem was lap dogs: lap and foot warmers which

also ate the leftovers).

10. Think of long term solutions, such as solar heated hot water piped under the floor or through the walls. New north facing windows, an insulating and heat trapping glasshouse, or even a more temporary one from clear plastic are other possibilities. Grow a creeper up the walls, pave outside the windows, and cover the paving with a pergola so it doesn't get hot in summer.

There's always the Mozart solution, too: if you're cold, don't just sit there — dance. Or do something. Like gathering old blankets or newspapers for insulation.

**A popular old timers' method of reflecting and radiating heat from a fire into the room was to place a polished ploughing disc behind the fire. Of course, it doesn't stay polished long, but it does radiate heat.* —Alan.



New life for an old caravan

by Bob Rich

Moora-Moora Co-operative, via Healesville, Victoria.

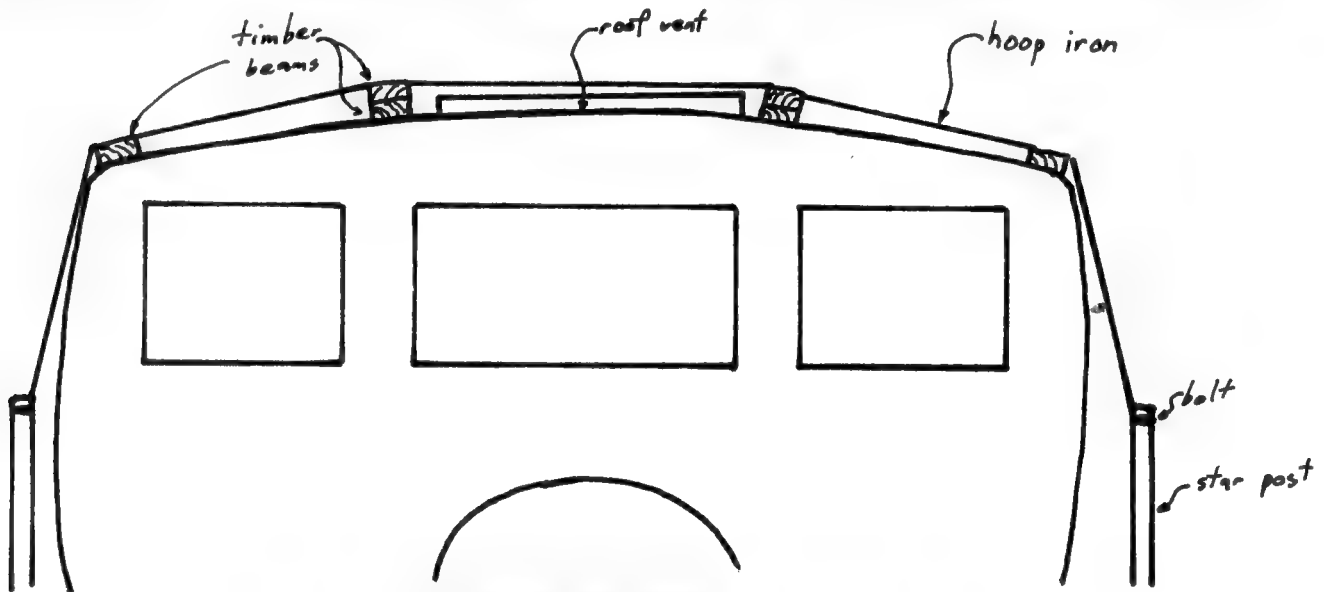
The old caravan was used only for storage and the occasional weekend visitor. But it looked like even this would end when the roof started leaking. Repair would have been a major job but my friend Philip Smith came up with a solution: a separate roof over the caravan. It took less than a day to build, and cost about \$30 for materials. If we ever want to move the caravan the extra roof could be dismantled in about an hour.

As the drawing shows, the caravan roof has a slight curve and there is a roof vent in the middle. Phil cut six scrappy bits of 4" x 2" timber to length (the caravan's

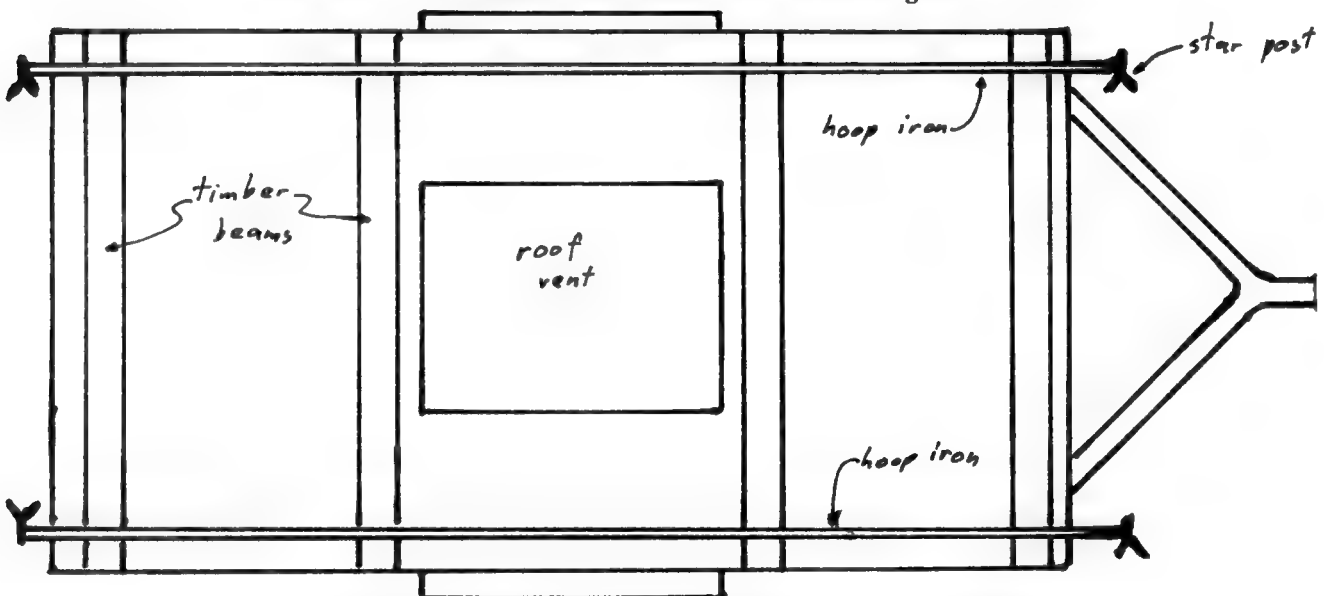
width). They were laid across the caravan roof as shown: one at each end, and one pair each side of the roof vent. He then belted four star posts into the ground, two in front of the caravan, two behind. Two lengths of hoop iron were thrown over and attached to the tops of the star posts at each end with short bolts. A few good hammer blows on the tops of the star posts tightened the hoop iron holding the timber (and the caravan!) down.

It was then a simple matter to nail on secondhand corrugated iron, paint it, and pop rivet offcuts of ridge capping to seal the middle.

All this was over a year ago. The caravan shelter has survived quite a few storms, faithfully keeps out the rain, and is going to last as long as the caravan under it.



A side view of the caravan shelter before the roof metal goes on.



A view from above the caravan, again, before nailing down the roof metal.

Energy-efficient design with soil and the sun



by Alan Thomas

CHRISTINE and Ted Field of Railton in northern Tasmania have built a fascinating house on their 20 acre property which incorporates some excellent passive solar design principles.

In fact, I think one of the central features of their house has enormous possibilities for owner builders in any part of Australia which gets cold in winter (and let's face it — there are a lot of us in that category!).

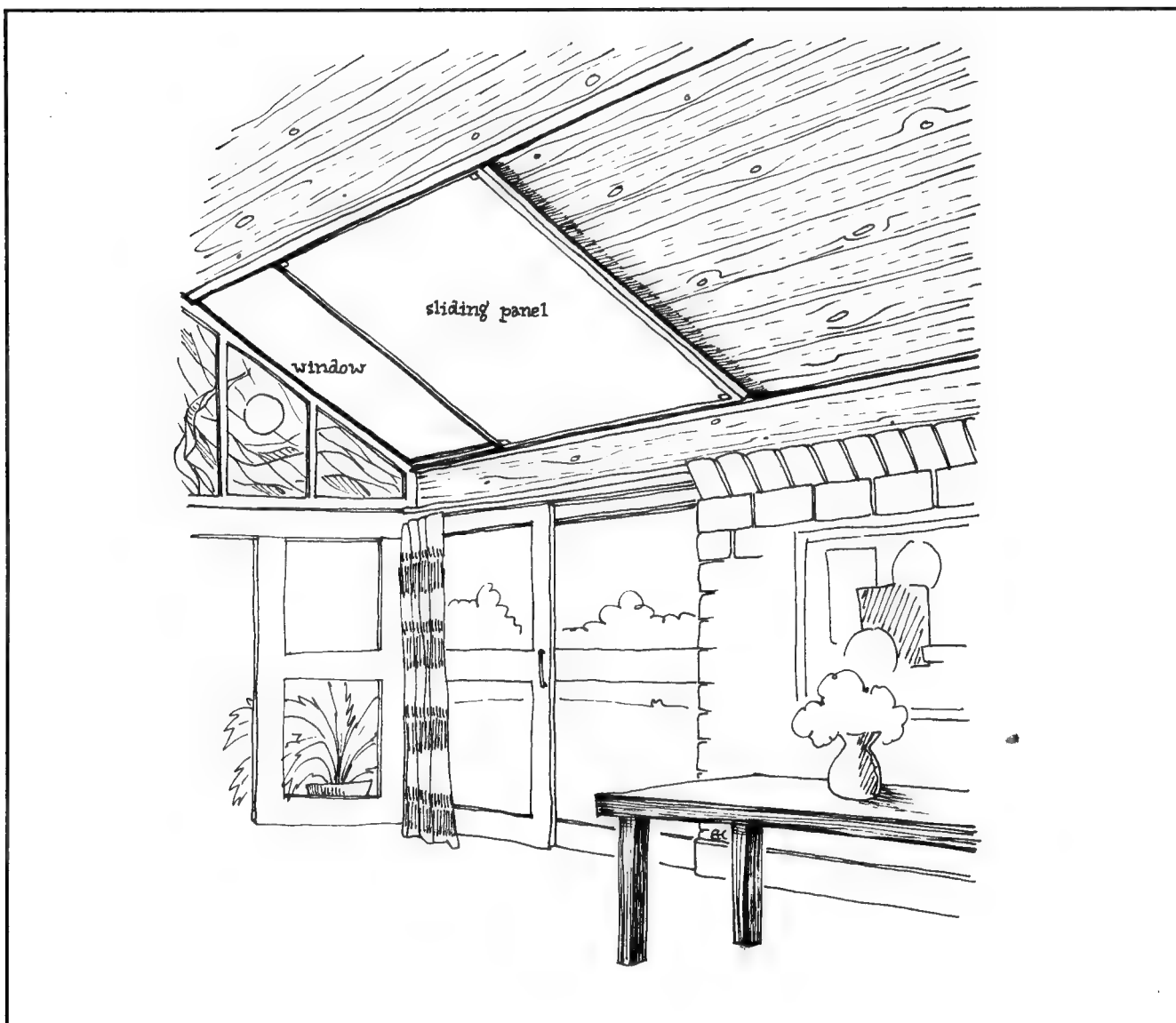
Their split-level stone, timber and brick home is known to some locals as the 'underground house'. In fact, it's more accurate to say that it's been built into the natural slope of their land to take advantage of the insulating properties of the soil.

The house has a due north orientation and most of the rear, or south side, of the house is dug into the hill nearly

to the roof line. The north face has full length sliding glass doors to take advantage of the winter sun, while in summer the angle of the eaves ensures that direct sunlight is excluded. The recently constructed solid oregon pergola will soon be sporting a grapevine for extra shade in summer, without diminishing the valuable winter sunlight. The Field's solar hot water system provides one third of their hot water needs in winter, and two thirds in summer. In their first summer in the house they spent only \$3 on electricity for hot water ('82-83 was a good summer to avoid giving money to the Tasmanian Hydro-Electric Commission).

These features are normal, sensible, solar design principles which take advantage of site orientation. Especially if you're in the cooler latitudes of Australia and your house has 20 foot high cathedral ceilings.

However, there is one more passive feature which ensures that inside the house it never drops below 14°C. Imagine that — when Ted and Christine and their children



The sliding aluminium panels are light to manoeuvre and allow the maximum winter sunlight to be absorbed into the house. The cathedral ceilings and celery-top pine linings give the interior a spacious atmosphere.

wake up in the morning in the middle of winter and the fire from their pot belly stove has long since died away, they don't have to feel like Scott of the Antarctic before he puts on his balaclava. The reason? Most of the roof on the north face of the house consists of 6 mm toughened clear plate glass which is strong enough to walk on. In winter (and for a hefty slice of autumn and spring) the Field house soaks up the sun, and the solid walls and concrete slab floor store it to keep the house warm during the night.

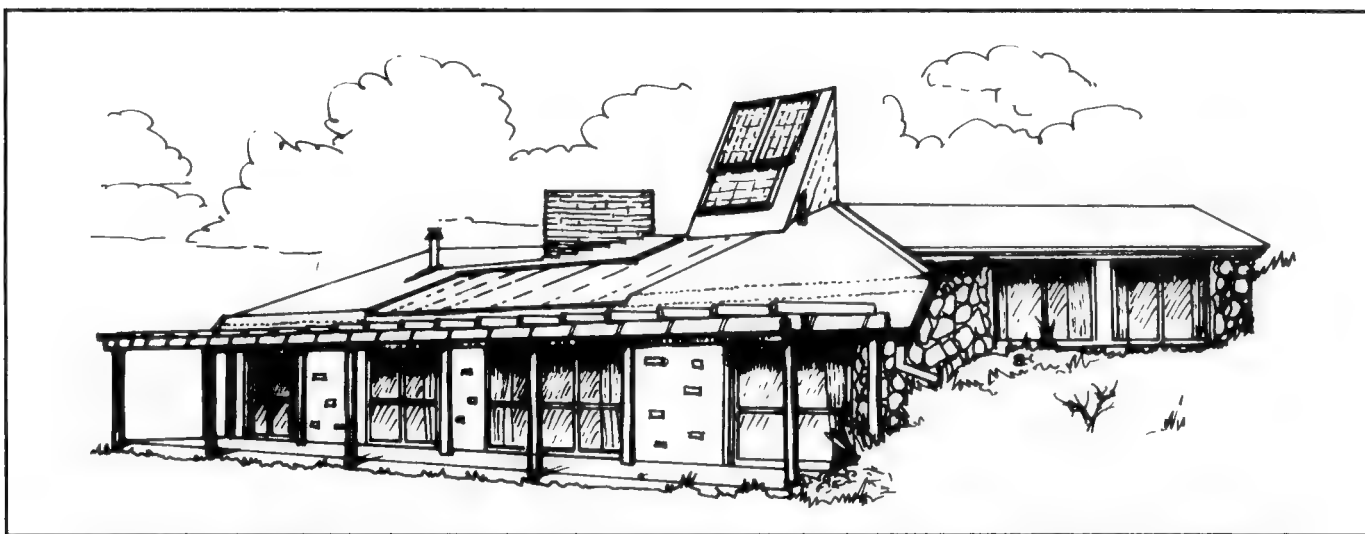
Now, what stops it feeling like a hot house in summer? Lightweight reflective aluminium panels are mounted on rollers and slide along tracks just under the glass.

At the start of a warm summer's day the panels slide across to block out the sun. In winter at the end of a day of sunlight streaming into the house, Ted and Christine simply

slide the panels into position to 'trap' the sunlight.

The large sliding panels (around 4 metres long by 5 metres wide) are filled with polystyrene foam and are extremely easy to manoeuvre. Ted and Christine use a big stick to push the panels across and say it would be easy to rig up strings and pulleys.

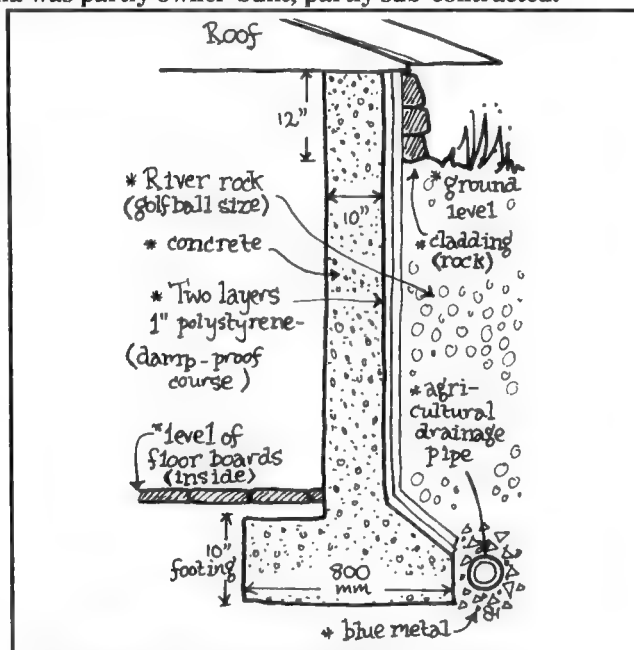
The sliding panels were custom-made but close examination shows that their construction is straightforward and most *Earth Garden* readers would have few problems building them. The panels consist of a layer of polystyrene foam sandwiched between sheets of pop-riveted white aluminium. Rollers are attached to each side and these run along an aluminium track attached, in this case, to the attractive varnished celery-top pine ceiling panelling. Ted and Christine had to send their glass panels to Melbourne to be



Christine and Ted Field's earth-bermed home in Tasmania was partly owner-built, partly sub-contracted.

reinforced — this was \$800 plus the price of the glass. Building regulations require reinforcing when the glass is to be used at a roof angle — hail stones can go straight through car windscreens makes it seem understandable.

The aluminium panels are so light that I'm sure you could fix timber ceiling panelling to their underside, to blend in with the rest of the ceiling. In years to come many owner-builders will use this heating system in their house plans.



Earth-bermed walls need good drainage.

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Towards food self-sufficiency

One one acre or less. Part I.

Earlier this year we visited the property of Arthur and Jean Brotheridge in Devonport, northern Tasmania. On their 3/4 acre 'plot' we were enchanted to find that Arthur has reached nearly total self-sufficiency in food production — and he has done this for nearly 30 years. The illustration overleaf shows there is hardly an uncultivated handful of soil on the entire property. Arthur's productive pastime is an inspiration to all of us, and proof that you *don't* need 50 acres to lead a fulfilling self-sufficient lifestyle. In this introductory article Arthur discusses general principles and motivations for self-sufficient food production. In Part II next issue he details a growing programme for establishing a self-sufficient half acre plot.

by Arthur Brotheridge

Devonport, Tasmania.

THROUGHOUT the following articles I shall try to write only about what I am actually, regularly growing or have successfully grown in the past. None of this is particularly difficult and I want to encourage readers to believe that if I can do it, then so can you.

The layout of my garden is not necessarily ideal, but then most people would probably say the same thing. You have to make the most of what you have — like Topsy, it 'just grewed'. Also, I'm experimenting with things I wouldn't necessarily recommend. For instance, I have 50 to 60 different kinds of apples, and have sent away for the scionwood of 28 more this year. I am trying to find a number of good 'late keepers', but I would recommend to readers only seven or eight for a good long supply of apples.

The experts who write gardening books recommend you sit down one winter evening and make up a plan of what will go where in the garden in the coming year, emphasising the need for a strict rotation. I think many *Earth Garden* readers will identify with me when I say that I usually stand in the garden and think, "Now, where the heck can I plant this?"

Apart from crop rotation, there are many factors to consider, such as the earliest crops being in a warm sunny spot, or the need to plant in blocks for watering purposes. My first row of peas has been in for nearly a month and I shall be

putting in a couple of four to six metre rows every two to three weeks until late November. So I could end up with one block of peas up to six metres by 20 metres.

Global perspective

World events are presented to us more comprehensively and sensationally than ever before in newspapers, radio and TV news and current affairs programmes. There is no excuse for being uninformed on the vital issues of today, and thinking people will build in their mind a picture of the future, and how they perceive their own future lifestyle.

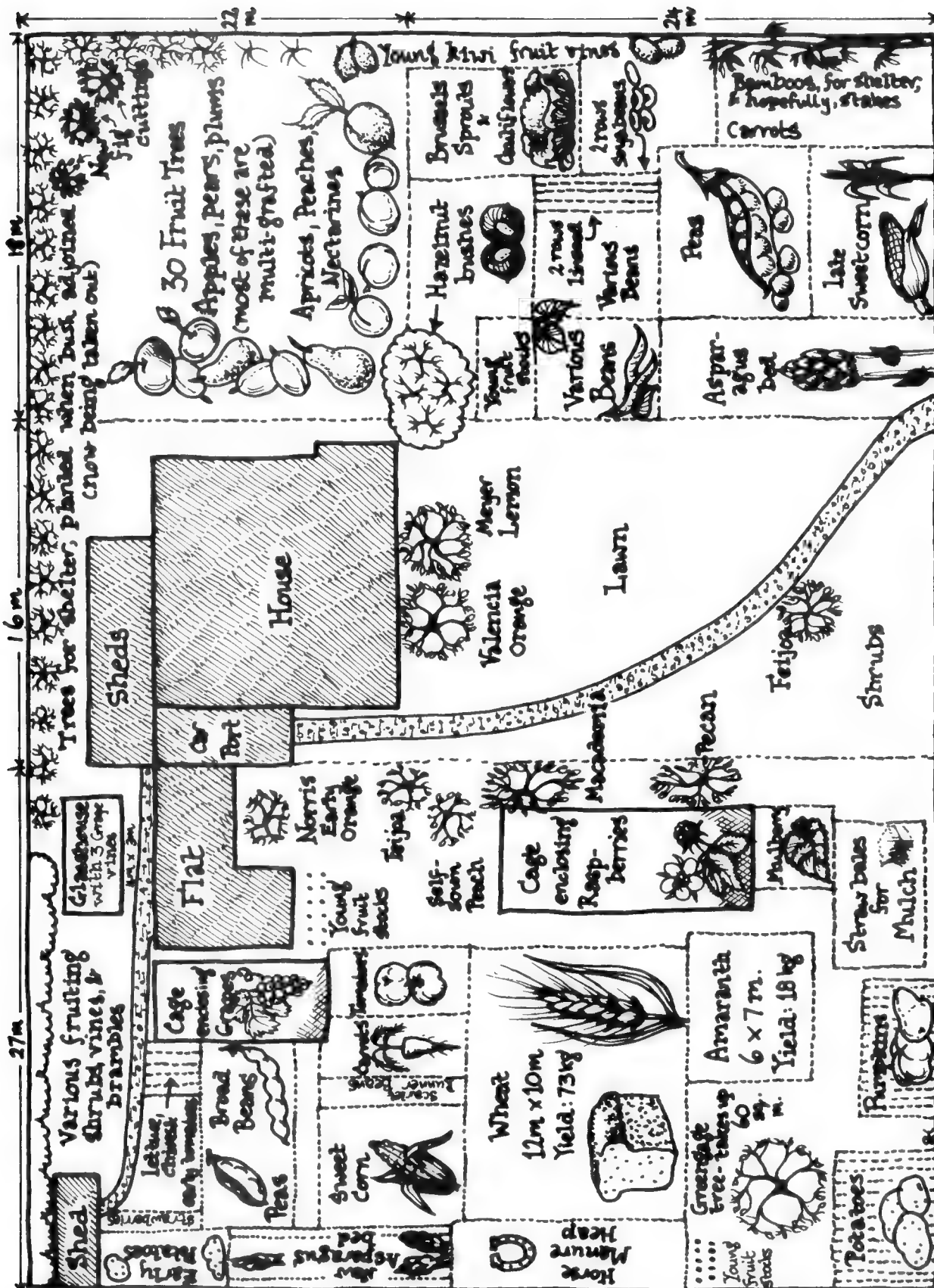
We live in a society where most people live in comparative luxury, even if they don't always appreciate it, and most will see a continuation of that lifestyle, because that's how they want it to be. Some people would probably ridicule me when I say that I see a desperate need for all who are able, to set about growing food for themselves.

Since the end of World War II western countries, and others to a lesser extent, have grown rapidly into societies of unprecedented material wealth. Now, the world as a whole (and particularly the western world) is muddling its way, if not to extinction, then to an economic catastrophe which will result in much lower standards of living. Perhaps the people at present on low living standards will find it easier to adjust than the ones at present indulging in a wasteful lifestyle. How many people realise, or even care, that they have become almost totally dependent on governments and vested interests for everything they need (as distinct from want)?

Those who see a danger in the present situation can not easily alter world events. We can however, try to influence people we come in contact with. I personally believe that central to these factors is the ability to grow your own food, and we should give urgent attention to this aim. You cannot establish an adequate food supply in a short time, but if sufficient people are serious about growing food for themselves we may be able to survive what I believe will be harder times ahead. And if, having embraced the whole idea of growing all our food, at the end of the century we are able to say, "Well, it didn't happen after all," we will find that, in fact, it was still well worthwhile, because we will have ensured our own good health, and reaped the greatest satisfaction possible from eating fresh food.

Growing for a healthy diet

Many people are working towards self-sufficiency but I believe we have not arrived until we can produce 1.6 kg of food each day (580 kg each year) for each adult, and amounts in proportion for children. What we produce should be in a





Arthur explains, in an accent reminiscent of Thomas Hardy novels, how he grows his vines and banana palm, while Camille munches on a grape.

wide variety, for it is recognised that we should eat of:

- vegetables and fruit generously
- grains moderately
- nuts sparingly.

Advisers on health and diet may vary on some items but all seem agreed on the following:

- eat red meat sparingly with all fat removed
- cut out or reduce sugar and salt
- eliminate white flour or similar 'embalmed' foods
- eat few dairy products or eggs (say two per week)
- fish and white meat are acceptable
- eat a selection of the perishable fruit and vegetables each day.

It's difficult to provide a wide range of perishables in season for every day of the year, but it can be done. Other foods can be dried, preferably on the plant for use throughout the year. It won't be easy, but then nothing worthwhile ever is. It must be sustainable because this eating business is permanent. It can and should be enjoyable and satisfying. It's got to be, because this is no temporary hobby.

For people who see the value in growing their own food it becomes a lifetime experience, and they can be planning 10 or 20 years ahead. In this present materialistic world which often brings disappointment, dissatisfaction, boredom, hopelessness and disillusionment, the experience of eating your own fruit, fresh and ripe to perfection, will be the ultimate experience — and available every day. I know it will, because I do it.

The first requirement is some land, and I am not thinking of that 10 or 20 acre bush property but one acre of good, well drained soil for a family of four. That will provide plenty of work for even the most enthusiastic gardener, if the aim is maximum production for your own table. The most rewarding activity is to aim for maximum returns for each unit of energy expended, whether human or machine power. In effect we are returning to a pioneer or peasant lifestyle, but with the advantages of modern technology to reduce the time factor and drudgery often identified with self reliance.

I am aiming for natural, wholesome unadulterated food eaten fresh and raw, or with minimum of cooking, grown in a practical easy way, in worthwhile quantities, and in a sustainable manner. By that I mean not only in caring for the soil so that its quality is maintained or even improved, but also being able to cope continually and adequately with all the necessary work involved — and to enjoy it.

The desirable minimum is a continuous, year-round supply of fruit and vegetables, a stock of seeds and grains replaced yearly, and some means of drying fruit and, as far as we are concerned, without freezing large quantities of produce. Sometimes we may freeze a small temporary glut and start using it up right away.

Our food supply

My wife and I live on a 3/4 acre block and after allowing for house, sheds, lawns and paths we have about 1/2 an acre of reasonably good land. Our land is high and dry (200 feet

above sea level), fairly well sheltered, and not subject to the very heavy frosts (the lowest is -2°C) experienced by lower lying areas only a mile or so inland. We are also within sight of the sea, tempered from summer heat by cooling north-west sea breezes.

While we do not claim to be self-sufficient, I feel that we could, if we had to, manage on what is growing and what we have stored of past production.

Many people grow in quantity and deep freeze. We prefer to harvest every day, usually as the meal in being prepared. We also choose not to keep animals or birds for meat or eggs. Not because we are against this but because there is a limit to how much you can do (we did in fact milk a cow for eight years while the children were at school, and kept hens for 25 years. I also worked full time in building for 27 years after arriving here from England in 1955, and worked up a one-crop-a-year sideline of tomatoes under glass cloches to a maximum of 2,500 plants. This resulted in a flush of work during the summer holidays, so I find, now that I have retired, that I have never had a holiday, or even more than four days away from this property. I don't feel underprivileged.

We eat very little red meat. Milk is used in small quantities. Leicester Jones will confirm that people do not need milk after being weaned, (although vegetarians, as they get older, do need a source of calcium). So, for us, the effort of keeping birds and animals is not worth the benefits. Much of a hen's food is made up of grain and scraps. My home grown grain is too valuable for hens. That goes into bread and cakes. There is no waste because my wife now bakes 9 or 10 bun sized loaves at once, most of which goes into the freezer section of the fridge to be taken out as required. A mouse would starve on the bread wasted.

We eat generously but do not waste food. The few outer leaves of harvested vegetables go into a trench and are dug in. Papers are saved and used as mulch (there is no paper recycling in Tasmania). Cardboard is burned with other fuel in the Rayburn to provide hot water and cooking space, and our empty tins would not fill a garbage bag in six months.

I do not have the patience to remember, or under-



In the foreground lie the remains of a healthy crop of organically-grown wheat, while in the background juicy sweetcorn are ready for staggered harvest.

stand, the value in calories or vitamins, or kilojoules, of minerals or proteins in the various foods. I believe the obvious way is to grow and eat a wide variety.

This applies too, to the soil itself. I do not know, or want to know about pH and mineral deficiencies (except that I'd probably be concerned it there was something radically wrong). So, I work on the principle that if everything that has grown, not being eaten, returns to the soil, with occasional dolomite and blood and bone applied to the whole area, we should maintain a satisfactory growing medium.

I must confess that I have never made good compost; that is, from kitchen waste and leaves. I do get large amounts of horse manure, which, of course, soon steam away after a good soaking. My waste scraps and weeds go into a trench which is regularly covered over. Again, it's a question of how much you can manage, and in the next issue I will detail a growing programme which one person can manage.



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BLUE MOUNTAINS



Windpower: still going strong thanks to Fred's windmill

by Chris and Rhonda Martin

Coonabarabran, New South Wales.

WE TOLD of our first experience with windmills in *Earth Garden* 31, page 44. After eight years our four metre Comet is still going strong and confirms our statement at the time that "a well chosen secondhand windmill is the cheapest long term method of pumping water". Our only costs to date have been windmill oil, pump buckets and packing washers for the syphon pump — a total cost of \$40.

For about three years we used our fire pump to pump water from our large 50,000 litre rainwater tank to a 4500 litre header tank on the hill above the house, a distance of about 150 metres. This was a bit of a nuisance because the pump had to be protected from the frost in winter and had to be moved back to the house each time we used it in summer: the pump was our house fire protection.

During a visit from friends while we were bemoaning the lack of good secondhand windmills, Fred casually mentioned that he had a mill we could have, and a spare tower as well. So after a little bartering we had another windmill in return for a spun fleece. The unit was a Southern Cross 8' Z pattern which was just weathering away — truly a case of being in the right place at the right time. The opportunity was certainly too good to miss and the windmill was back at our place within a month. The spare tower went to another friend.

The mill was still in good condition although a number of smaller parts such as 'U' bolts and hinge pins were missing. We thought we would have to have these made up but were amazed to find that Southern Cross still keep parts for nearly every product they have ever marketed. A new set of tower anchor posts, concrete, and a total cost of \$200 for parts add up to a cheap mill when you consider that a new one costs around \$2000.

We helped erect our Comet so we were confident about raising this (considerably smaller) one ourselves. For this old model, Southern Cross could even supply us with an instruction book which included a set of detailed diagrams on how to put the mill together and erect it.

Digging the three anchor post holes was an interesting lesson in geology — one hole revealed a band of quartz that had sparks flying in all directions and the crowbar jumping back out of the hole. Needless to say, this hole was not dug to the recommended depth but Dyna bolts were sunk into the quartz layer to provide a grip between it and

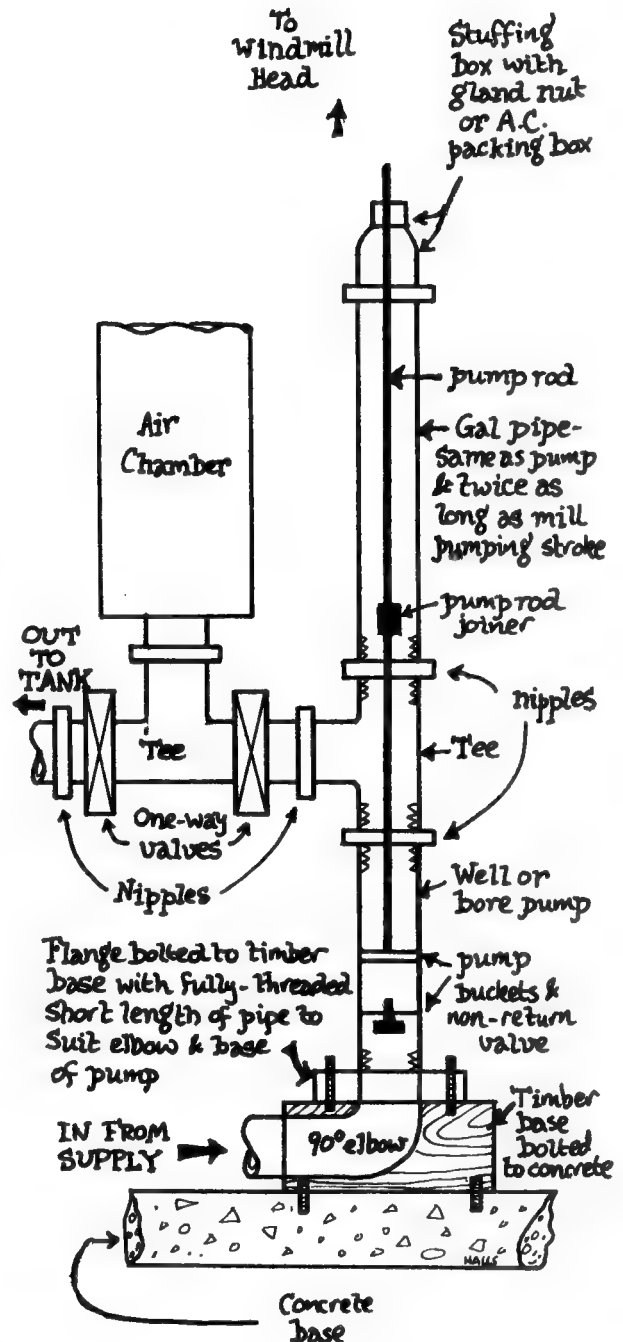


Diagram of the mill's pumping mechanism.

the concrete. If you are contemplating your own windmill never stint on anchoring the base with the correct size holes and concrete because many tower failures have been attributed to poor anchorage. A definite case of overkill is preferable.

The instructions recommend that the mill engine be placed on top after the tower is erected. Providing it is a small head, say up to two or three metres, and the tower and anchor posts are in good condition, there is no reason why it cannot be pulled up with the tower. You can pull up the tower with just two people but we had eight friends, which made it a lot easier, especially for levelling the tower.

A plumb tower means a happy windmill which will point and turn in light breezes. An out of plumb tower places more pressure on one leg and the mill always pivots to the lowest side, causing poor pumping performance.

The tower footings were allowed to cure for seven days and then the wheel and tail were hoisted up in sections and put in place. We then spent two months looking for a secondhand syphon pump. They are relatively rare and the only one we found had been badly cracked by frost, and old cast iron does not like being welded. We enquired about a new one and found that at \$450 it was \$100 dearer than the fire pump. Shades of Greg Baker's 'Why Does It Always Happen to Us?'.

There had to be a cheaper way. Southern Cross said there was a way, but the cost of the bits and pieces to make it up was over half the cost of a new pump. Even then it would not be as good as the real thing. So it was back to the drawing board.

Clearing sales are marvellous places to buy old bits and pieces providing you know the new and going prices for the items you want. It was at a sale in January this year that we found the items we were seeking. For another \$25 we bought various pipe fittings and were able to make the pump shown in the diagram. This home-made pump does not produce as much water as the pumping tables claim a new pump would but who wants 4500 litres of rainwater a day anyhow!

With three wind energy devices on our 33 acres any visitor could be forgiven for thinking that the owners had the tendencies of Don Quixote. After selling our wind generator we are now back to two windmills and we enjoy the lack of noise and pollution from the fire pump. The windmills do squeak a bit. We make a weekly inspection to tighten the gland nuts to stop water leaking between the pump rod and the packing, and three monthly inspections to tighten nuts, other working parts and top-up the oil. Apart from this minor maintenance they keep pumping for little cost.



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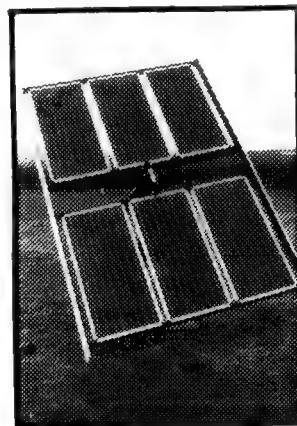
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Solar tracking: is it really worth all the hassle?

by Lindsay Corben
Lillian Rock, via Nimbin, NSW.

The article in *Earth Garden* 53 on solar tracking by Paul Pratt has prompted me to set out some ideas about the subject. There seems to be a lot of enthusiasm for tracking to increase the available solar energy. People have said: "I turned my panel towards the sun and the current increased to three times." Of course this can happen, but the real question is a bit more complex.

What we really need to know is — how much more energy are the panels capable of pushing into our batteries if we track? In other words, we have to add up all the little elements of energy (watts x time) over the course of a day to make comparisons.

For 240 volt AC mains electricity, the kilowatthour meter does the job, but similar instruments for DC are rare. We could sit all day taking readings from a stopwatch and the meters on our control panel but that could be tedious, especially if data were required over a year.

There is a mathematical method of adding up little bits, called integration, and this can provide quite good guidelines. The table below shows the possible hours a day we can track, and the corresponding ratio of energy able to be received by tracking panels compared to fixed panels.

These figures are based on the following assumptions:

1. The tracker is mounted equatorially, that is, it turns around an axis parallel to the earth's axis of rotation.
2. The panels are seasonally adjusted on the tracker.
3. The solar energy has the same strength all day as at midday. There are reasons to suspect that this is not so:
 - a. On average, there may be more cloud cover in the mornings and evenings than around midday.
 - b. The solar input has to penetrate a greater depth of atmosphere when near the horizon.
 - c. Shadow-throwing objects tend to be towards the horizon rather than high in the sky, and even the smallest shadow reduces panel output significantly.

Thus the ratios given are the maximum possible and you can bet your life they will be less in practice.

You may wonder why the hours of tracking go all the way up to 24. It is possible to track for 24 hours a

day at the poles, where the sun is always near the horizon. In summer this is always *below* the horizon.

At the equator, the sun always rises towards due east, and sets towards due west, so roughly 12 hours tracking is feasible all year around, provided you have flat landscape to the east and west. So the maximum ratio in the tropics is 1.57, that is, a theoretical improvement of 57 percent.

In the temperate zones, we move to a position between these extremes and in northern NSW we could get about 15 hours in summer and about nine hours in winter. That means (from the table) approximately a 100 percent improvement in the summer and 25 percent in the winter. But the point is that most of us are short of electrical energy in the winter, so the figure of 25 percent is the relevant one. Quotes of 'up to twice' the energy by tracking may be achievable when we don't want it, and are deceptive. Remember also that the lower figure is a theoretical maximum — it may actually be a lot less.

I think we need to look very carefully before committing ourselves to tracking. An extra panel will probably cost more in the short term, but we can be sure of the amount of extra energy available, and the installation and maintenance are much simpler.

It is important to realise that the critical figure is the number of shadow-free tracking hours you can get at the time of the year when you most need it. The lower the number of hours, the less the advantage.

Perhaps there are independent researchers who have been able to set up fixed panels and tracking panels at a test site. Their test results would be very interesting.

For the mathematicians:

Let: R = advantage ratio

T = tracking time (hours)

$\pi = 3.1416$

$$\text{then } R = \frac{\pi \times T}{24 \times \sin(7.5^\circ T)} \quad \text{for } T \text{ up to } 12.$$

$$\text{and } R = \frac{\pi \times T}{24} \quad \text{for } T \text{ over } 12.$$

Daily tracking hours:	2	4	6	8	10	12	14	16	18	20	22	24
Tracking advantage:	1.01	1.05	1.11	1.21	1.36	1.57	1.83	2.09	2.36	2.62	2.88	3.14

Battling in the bush

Part II, continued from *Earth Garden 55*.

by John Wolfe

Mallacoota, Victoria.

A FEW days after the centipede attack, I was returning to Porridge Hill in the old Bedford truck. I had just delivered a load of firewood, and there was nothing in the tray except a roll of wire-netting. A uniformed officer stepped onto the highway and flagged me down, so I pulled the old green vehicle onto the grass beside the road. The inspector climbed up on a rear wheel and looked in the back. The truck had been pronounced roadworthy at its police inspection and the registration was in order. I had nothing to worry about, or so I thought.

"Fencing material," said the official, writing something down in a notebook. He recorded the registration number, and the tare weight painted on the side of the truck. Then he said: "Let's see your log book."

"Log book?"

"Log book!" repeated the man in the cap, his eyes narrowing. "You're driving a two-ton truck, and I want to see your log book!"

It was the first time I had heard of log books, or the Transport Regulation Board, but not the last. A few weeks later, I received a summons, which frightened the life out of me, for I had no money to pay a fine. If there were such things as legal aid and unemployment benefits in those days, few people knew about them. My ignorance of the law was such that I made two train journeys to distant Melbourne, to see the powerful officials of the TRB. After being shunted from office to office, at last I found a man who was involved in some way in my prosecution.

I stood nervously in front of his desk as the official studied various files of papers. At last he looked up and said, "It seems that you were driving your truck within a few miles of your own farm, so the regulations don't apply. A prosecution by our Board is unlikely to succeed, so proceedings will be dropped in your case."

God had spoken. In a sort of dream, I hurried along the corridors of power, and found my way into the street, before he changed his mind. What a relief to be back on the train, heading for Gippsland, a free man!

I thought things over on the four hour train journey. There seemed to be nothing in the firewood game but blood, sweat and tears. As I looked through *The Weekly Times*, an advertisement caught my eye:

Pettigrove's Pedigree Pullets

Day-old chicks railed weekly to all parts of Victoria

That was it. I would make a living selling eggs. No more inspectors and prosecutions. No more splinters and blisters. The dangerous swingsaw could be sold, or better still, pushed off a boat in a deep part of the Tasman Sea, never to be seen again.

Porridge Hill poultry farm

Back at Porridge Hill, I set about building coops for the chickens. Of course there was no electricity, so I devised hay boxes which worked by efficient insulation, and brooders heated by kerosene lamps. What excitement as the first big cardboard box arrived on the train from Melbourne containing one hundred cheeping yellow balls of fluff.

The hay boxes were so efficient that I had to be careful about overheating. There was plenty of fresh air at Porridge Hill, so the chickens thrived. The first disaster occurred when a faulty lamp set fire to a brooder, and 20 chickens were incinerated before I could save them.

I constructed an elaborate hen house from bush materials, plus wire netting and nails. Even the unpopular swingsaw was useful for sawing planks for the nesting boxes. I made the walls by stretching chaff bags on a frame, then painting the bags with a slurry of cement, lime, salt and alum. The rafters were small manna gum saplings which grew in thickets around the big trees. Surprisingly, when I looked at this hen house more than 20 years later, just before it was demolished to make way for the Loy Yang power station, it was as solid as the day I built it.

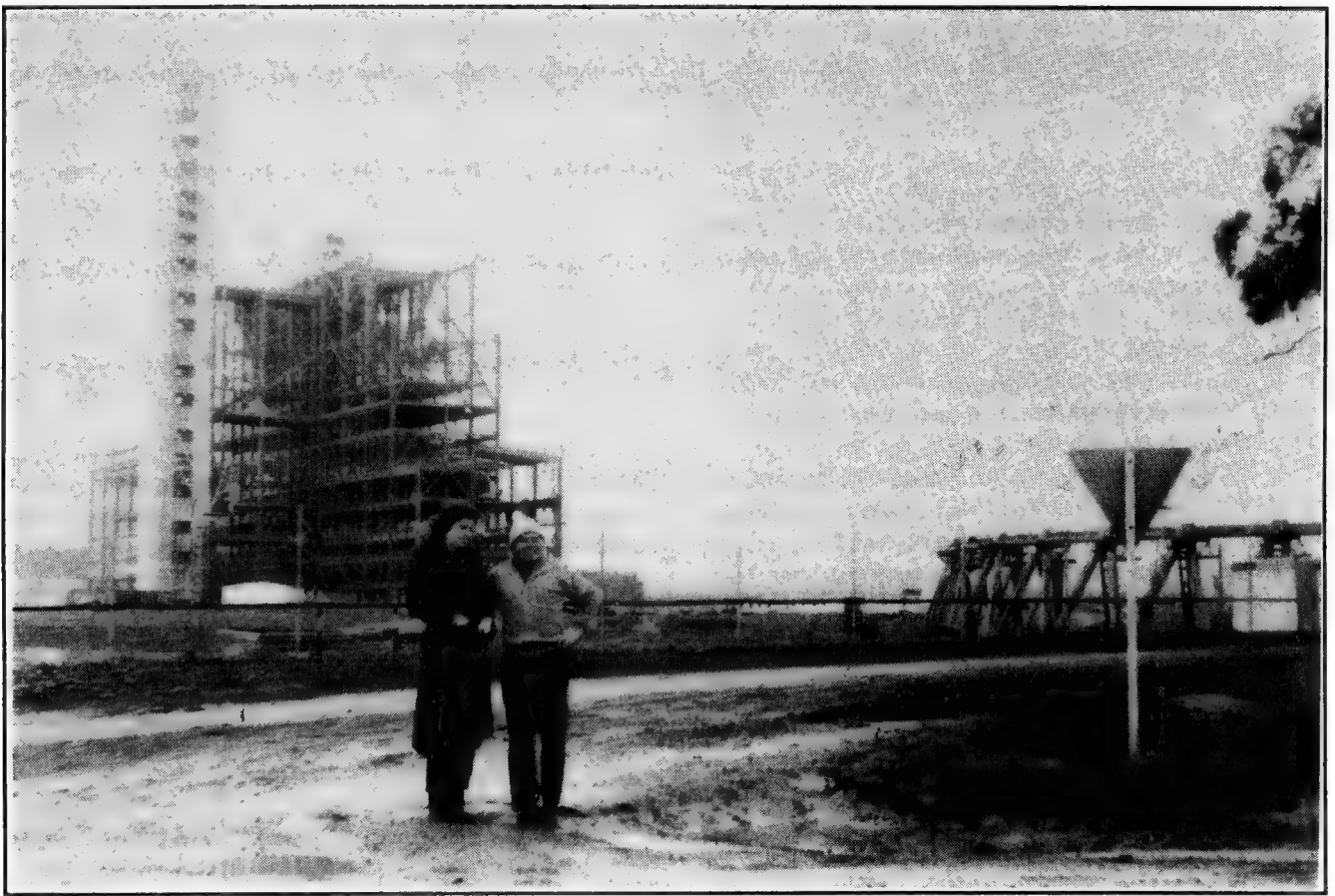
There was a long fattening coop for roosters, built largely from tea tree stakes. I built A-frame houses for pullets on sledges of forked logs, so they could be hauled about. The growing hens were shut up at night, but ran in the bush during the day. My kelpie dog maintained a shepherd's patrol and kept the wild tribe within earshot. Some pullets fell victim to goannas and strange, fierce little creatures called phascogales. The phascogales looked like rats with large ears and bushy tails, and lived in hollow trees.

Soon I was selling eggs to the shops in town. All went well till a grocer told me it was illegal to have more than 20 hens, and that I should have a permit.

"Where do I get a permit?" I asked.

The grocer gave a grim smile. "You get the permit from the Egg Board," he announced.

Surely not another Board with inspectors and prosecutions? I hurried to the post office to check the telephone directory. Sure enough, there it was in black and white, a real Egg Board. A vision came to me of a group of stern men with bald heads seated around a polished table.



Twenty-one years later the koalas have disappeared and today the Loy Yang power station stands on Porridge Hill. (Compare this shot with the same view in Part I, *Earth Garden* 55, page 30).

Being young and green, and fearing more trouble with the authorities, I wrote forthwith to the Board and asked for a permit. In reply came a warning letter so infused with long words and waffle that I found it difficult to understand. I showed the letter to other people, but none of my friends could make head or tail of it. But we deciphered the last paragraph in the letter by looking up the long words in a dictionary. The translation seemed to say that no more permits were to be issued until a certain future date, but that date had not yet been fixed.

Having thus brought my bush hens to the attention of the authorities, it scarcely came as a surprise to see another expensive motor car, bright with chrome, parked in my driveway. Another man in a suit advanced with a measured tread on the collection of bark and tea tree chicken coops which comprised the Porridge Hill Poultry Farm.

I had already learned that government officials had certain characteristics. Just as a bird observer may recognise a species by a flutter of wings or a chirrup of song, I noted the pompous, aggressive walk of the new arrival.

Like my previous visitor, he stood on the rise awhile, looking about him. I think he may have been counting the hens, a difficult task, as they were scattered through the bush and were mostly out of sight. I watched him

from beside the water tank, and at last he walked over to me.

"Egg Board," he said abruptly. "Errr . . . how many hens do you have here?"

"Just a few pullets," I said. Unluckily for me, at that moment squawking came from the scrub. The eggman threw a suspicious glance in the direction of the noise. He wore a sports hat, with a tiny bright feather. Despite this disguise, I could see, sure enough, that he was bald and that his head was shaped like an egg.

"Errr . . ." said the eggman, and this preliminary sounded to me like the drawling, complaining note of an old hen. "Errrr . . . what about that long coop over there? Is that an errrr . . . laying battery?"

"Cockerels," I said. "I'm fattening them up for Christmas. No hens there."

The eggman turned his suspicious gaze to the scrub from where he had heard the squawking. To my dismay, he started to walk along the track through the gum trees, where more than a hundred hens were happily scratching. If he passed the fence and saw the flock, I was done for.

But good old Blackjack saved the day. Blackjack was lying in the grass beside the fence, warming himself in the sun. When the eggman saw Blackjack, he jumped about two feet in the air.

"Snake!" he cried. "A big black snake near the fence!"

"He won't hurt you," I said. In fact, Blackjack was quite tame. He lived in a hole by the hen house, and led a happy life hunting mice, frogs and grasshoppers. Sometimes he swallowed an egg but that was his pay for keeping the mice down.

But the eggman didn't like the look of Blackjack. "Must be nearly seven feet long!" he exclaimed.

"He frightens the tiger snakes off," I agreed.

"Tiger snakes?"

"Over in the bush," I said. "They get a bit aggressive at mating time."

"Look here," said the eggman, who looked rather shaken, "Just how many snakes, I mean hens, do you have on your property right now?"

"About a dozen," I replied. This was the truth, for the rest of them were over the boundary fence in the bush.

"If you have more than twenty hens," warned the eggman, and I didn't like the glint in his eye, "without a permit, then you are liable for prosecution." Then the eggman went away.

I thought it might be safer not to sell any more eggs to the grocers. Even now, the eggman might be checking up on me. The trouble was that I had an unpaid feed bill at Permewan's store, and depended on egg sales to settle it. Again, I suffered from lack of sleep at nights. I went to see Mr Bruce, Manager of the store, and told him of the problem. "You'll be able to pay sooner or later, won't you," he said in an encouraging tone. I wish there were more people like Mr Bruce.

There were two hundred hens to feed, and plenty of eggs, but money was in short supply. I started buying "stiffies" at the baker's for six shillings a bag. The hens didn't complain about the stale bread. I ate it too.

As the old truck bounced back from town along the rough track through the big gums, the hungry hens would hear the banging of the tray. They knew what that meant. In a feathered version of the Charge of the Light Brigade, they rushed through the scrub towards the noise. Four hundred yards from the shack, the truck would be brought to a stop by a horde of flapping crossbreeds, who mobbed the vehicle from all sides, running under the wheels in their excitement.

Brushing squawking hens out of my way, I would climb onto the back of the truck, and hurl a few loaves of bread into the trees. The chase then continued through the bush, and I could proceed.

Snowed under by eggs, I advertised the poultry as laying hens. As eggs were expensive at the time, the hens were all sold without trouble. At last I was able to pay the patient Mr Bruce and show a small profit.

It was a time of 'economic recession'. Jobs were scarce, and people had little money to spend, or those that did, held it in a tight fist. My diet was porridge for breakfast, cheese and jam sandwiches for lunch, with eggs and vegetables at night. I rarely ate chicken, for I didn't like killing poultry.

It seemed that whatever you tried to do to make a living, there was someone out to stop you. My new plan was to grow a crop of potatoes, and all my meagre savings went on seed and fertiliser. Perhaps that may have been illegal as well, for I heard later that there was a Potato Board, but no one came to confiscate the crop. If they had done so, they would have been disappointed, as it turned out to be the wettest season on record. Rain fell in torrents, and most of my potatoes rotted in the ground. Three quarters of the crop never came up.

I could see I was not winning in the poor soil of Porridge Hill, and when the opportunity came I moved to better land in a beautiful creek valley five miles away. But that is another story.

Today, a great power station stands on Porridge Hill. The mighty towers and smoking chimneys can be seen from thirty miles away. The trees, koalas, wallabies and goannas, together with my sheds and fences, have disappeared. The very surface of the land has been changed, as the Loy Yang coal is burned to provide power for the city of Melbourne. The last time I went there, one old manna gum still remained, marking the historic site near my gate where the eggman parked his car.

'Battling in the bush', parts I and II, are extracts from John Wolfe's forthcoming book, 'Encounters with Bureaucrats'.

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A 12V FREEZER IN MY KITCHEN

Articles in recent issues have warned us of some readers' bad experiences but regular *Earth Garden* contributor, Jose Robinson, shows that it is possible to have a happy experience with 12 volt solar refrigeration.

by Jose Robinson

Wild Cattle Island, Queensland.

SINCE we became hooked on power from the sun, our addiction has known no bounds. From a humble beginning some years ago of only one 42 watt solar panel, we have slowly graduated to an almost completely solar energy home.

To buy everything you need for a solar system in one giant sweep is rather a costly exercise. However, it is possible to work your way up the solar ladder slowly as we have done, adding to the system as you can afford components. Then the financial pain is not so bad. The end results, believe me, are worth their weight in molten sun.

Our most recent purchase has been a 12 volt freezer. It has a freon refrigeration system with a 60 litre (2.1 cubic ft) capacity.

We've been generating our own electricity for the

TO ALL READERS WHO ARE MOTHERS

If you have had any of your children delivered by Caesarean section, I would like to contact you.

I am researching a book on Caesarean section in Australia and would like to talk to as many mothers as possible about their experiences.

The book will be part practical advice, and partly a recording of people's experiences of this form of childbirth.

If you would like to contribute your experiences to this project, please write to:

Sophie Masson,
222 Sandon Street,
Guyra, New South Wales. 2365.

past eight years while living on a small island, out of the range of the far-reaching arms of the mainland power supply. The past few of those years we've been making the change-over to solar energy.

Our refrigeration had been from 40 kilogram gas cylinders, transported begrudgingly from the mainland. We'd long felt that the cost of gas, plus the transporting effort involved was a bug-bear we could do without.

The principle of domestic refrigeration from mains power is simple enough, but once you get away from that situation, the scene becomes rather more complicated.

With all refrigeration there has to be a gas, (usually freon) which boils at a temperature below that required inside a refrigerator, to be pumped in liquid form inside a plate in the refrigerator and allowed to return to its gaseous state. In the change from liquid to gas the freon takes heat from its surroundings — the contents of the refrigerator.

Probably people living in areas with mains power, seldom if ever give much thought to the constant cutting in or switching off of their refrigeration systems. They barely notice the slight click, then the motor running for a period before turning off again. This of course goes on year in, year out.

The same principle applies to 12 volt refrigeration but modifications are required to adapt the system. Our freezer's four sides and floor act as the evaporator. The outside aluminium cabinet is used as the condenser.

A battery powered freezer must have adequate ventilation all around the cabinet. At least 8 cm of air space should be available on all sides of the freezer.

Food placed in the freezer at room temperature takes an average period of time to freeze down, but if a lot of food at room temperature is placed in the freezer at one time, a tremendous amount of energy is required to bring the temperature down to freezing. The compressor will have to run continually at the highest setting while lowering the food temperature.

Deep cycle batteries are absolutely necessary to run a battery freezer. Our freezer has 12 cm of insulation, and uses approximately 30 amp hours per day.

At least now when I open the door of my freezer running free from the sun, I don't see dollar signs before my eyes, as I did with the previous monster as it gobbled gas like it was going out of fashion.

Living with solar energy can be a very worthwhile and rewarding experience. For anyone who may be contemplating and weighing up the solar alternative, my advice is — go for it! You won't be sorry. The sun has been there for us to use since the world was created, we have only scratched the surface of its potential.

Plant of dreams: the common hop

by Sophie Masson

Guyra, New South Wales.

MOST people in Australia have never seen a hop plant, let alone thought of growing one. Although some hops are grown in Western Australia, most of the hop growing for the brewing industry is done in Tasmania and Victoria, because the hop is essentially a cool climate plant. It is also a relatively easy plant to grow which can add a touch of interest to any garden, and its pale green female flowers, or cones, can be harvested to make real beer.

Don't think of getting into the commercial hop growing industry: that market is well and truly sewn up by the brewing giants. As a hobby though, hop growing can be very interesting.

The common hop (*humulus lupulus*) has been grown for over 1,200 years to flavour beer with its distinctive bitter aroma. The story goes that the Romans brought the plant to Britain; before that, Boadicea's people had brewed beer from grain, such as millet. The British adopted the hop as their own and soon perfected 'the witch's brew' which today is known by the name of beer.

The hop has rather prickly stems and is a relative of the nettle. It is an extremely hardy, long-lived perennial which is easy to propagate from roots. It dies back in winter, and in spring it sends out up to 25 twisting shoots. New vines are produced each season and die following maturity. After the plant has stopped its spectacular growth (it can literally grow overnight) it produces pale, papery, cone-like flower clusters which are harvested and dried in summer.

The hop has an extensive root system which penetrates the soil to a depth of more than four metres. The roots are extremely strong and can resemble the roots of small trees. Although the commercial life of a plant may only be about ten years (because new varieties are constantly being bred) traditionally, hop plants produced for a hundred years, and sometimes more. Once when a neighbour of mine in the great hop-growing region of Worcestershire in England dug up a field of now-unfashionable varieties, the forty year old plants were still fresh and vigorous, producing many kilos of flowers each year.

The best-known varieties of hops in England have been Golding's and Fuggies, but Wye College at the University of Kent, which is entirely devoted to the study of *humulus lupulus*, breeds and sells an astonishing number of new varieties each year. As tastes change in beer flavours, more and more varieties are created. These days the brewing giants use the extracts from hops rather than the flowers themselves, although the Real Ale Movement, which is very



The common hop vine: *humulus lupulus*.

popular in Britain, has helped the revival of their use as whole flowers.

Hops are easy plants to grow. We bought plants from The Botanic Ark, an interesting nursery of unusual plants in Victoria. We planted four root pieces in spring, and although two failed to come up, the other two thrived and produced an amazing number of shoots. You must not overwater hops because they will rot, but they also need a decent amount of water (watering twice a week is sufficient in a cool climate, but they need more in warmer climates). They do not like too much direct, scorching sunlight — growing them in the shade of a fence is probably a good idea. And once they start sending out shoots, they need string and wire so the vine can be trained. The vine always grows in a clockwise direction, and you must take great care when twining the tender young shoot around the string because the growing tip can easily break off. Their growth is really quite stunning — you can actually watch the plant grow! Later, when the vine has stopped growing, the flowers appear, and when they are fully grown, may be picked and used for brewing.

Hops also make very attractive and unusual climbing plants for a pergola, a fence or a verandah. Their large leaves are an attractive shape, and they grow so quickly that in a matter of a few weeks, they can provide a leafy screen. They will die right back in winter, back to the root. But don't be concerned—as soon as the warm weather approaches, the questing young shoots will appear again.

Hops are gathered in summer and used to be dried in what were known as oast-houses, tall conical towers which dot the hop-growing countryside. Today, even though the buildings may still be used, the methods of drying have changed, and modern technology is used at every stage.

For individual purposes, hops may be dried in a very slow oven or in the sun on a rack, until they are dry and almost powdery. This must be done immediately after picking. The brewing value of the flowers is based on their content of bitter resins, essential oils and tannins, which are released through drying and then boiling in wort (an infusion of malt). The ultimate bitterness is due to the 'isohumulones' derived from the flower's acids while boiling, and it is these isohumulones which are often added these days during the brewing process.

But why grow hops if you're not going to try your hand at brewing? The following recipes are to make simple traditional English beers.* Try them, and happy brewing!

Malt extract beer (for five litres of beer)

500 g malt extract;
500 g white or brown sugar (to taste)
15 g dried hops
beer yeast;
2 1/2 litres water.

Method

Boil the malt extract, hops, sugar, and water together for an hour, maintaining the volume by adding water. Then strain the mixture through muslin into a jug, and, when cool, make up the volume to 5 litres with water and then add the yeast. Skim and discard the first yeast head, and leave the mixture, covered with a cloth, in a warm room until fermentation ceases (until it's stopped bubbling).

Then syphon off the beer into clean beer bottles, each containing a lump of sugar. Next, cork and wire the bottles (or you can use the special beer caps which are sold at all brewing outlets, knocking them in carefully). Leave your mixture for a couple of weeks to a month. The beer is ready as soon as it has been carbonated by the secondary fermentation brought on by the lump of sugar. Make sure you store your beer in a cool, dark place. And fasten the tops on carefully: carelessly fastened beer bottles can be lethal!

**taken from 'The Book of Home Made Wines', by F W Beech (National Federation of Women's Institutes in Britain).*

Malted Grain Stout

This beer is more complicated to make, but malted grain beers are fuller in flavour than those made with malt extracts.

Ingredients:

500 g crushed pale malt
125 g crushed black malt
125 g crushed crystal malt
125 g flaked barley
80 g brewing sugar
1 level teaspoon salt
15 g hops
beer yeast
1 1/4 litres water.

Heat the water to 77 degrees C, and pour in the crushed malts while mixing slowly. When the temperature has dropped to 66 degrees, place in an ovenproof dish in the oven at low heat. Leave for two hours and check two drops of mixture with iodine to make sure there is no starch residue. If some starch remains, leave the mixture longer until it does change. Pour the mixture through a strainer, and spray the residue with a further 2 1/2 litres of water.

Dissolve the sugar in the combined hot liquids and make the volume up to 5 litres. Add the hops and simmer gently for 2 hours, strain, readjust the volume to 5 litres, cool to 21 degrees C and add the yeast. Skim off the first yeast head and allow the brew to ferment for a few days, then skim off the second yeast head (keeping it for further brewings if you wish).

Syphon the beer into a plastic barrel and add 4 teaspoons of sugar, and if you like, beer finings to clear the beer. Leave 7 days when the beer should be conditioned. If you want to omit the finings, you can add instead 1/2 a teaspoon of sugar per bottle and leave for 5 weeks.

* * * * *

If you don't want to make beer with your hops, you can use the dried cones as unusual decorations, or pack a number of them in a sleep pillow. Hops are great for insomnia! The hop can also be dried most successfully in fruit-drying ovens. Hop plants are available from Steve la Valley at The Botanic Arc Nursery, cnr Sutton and Copeland Rds, Warragul, Victoria, 3820. Tel: (056) 235268.

I am wanting to compile a list of distributors of solar, wind and water power devices, as well as low voltage systems and gadgets throughout the Pacific region and Third World countries.

Please forward this information to:

Peter van der Wyk

***c/- Nimbin Neighbourhood Centre,
New South Wales, 2480.***

Build a home food smoker

by Jose Robinson
Wild Cattle Island, Queensland.

SMOKING was once the traditional method of preserving meats and fish. Our ancestors hadn't the convenience of refrigeration, so smoking or brining was their only way to preserve surplus foods for leaner times. Smoking was done in many different way and with various structures or containers, but the end result was much the same as we can achieve with a home-built smoker.

You can experiment with different and very succulent flavours in foods by trying home smoking. The simple art of smoking food does not have to mean expensive equipment. Most commercially smoked foods are quite expensive.

You can make your own smoker at home, and find much fun in the process. You can heighten and improve the flavour of some foods and provide much eating pleasure for your family or guests.

A 20 litre metal drum makes a good sized trial unit for home use. I found a very suitable container among some junk in my back shed. It was a 33 cm x 27 cm x 36 cm galvanised disused electricity metre box. It required very little modification, as it already had a hinged door on it.

I drilled a few holes in the top to vent the smoke. Then I attached a dozen wire hooks inside the top. This is for hanging the food to be smoked. A wire rack inserted about halfway, acts as a shelf to spread out thin fillets of fish which are not suitable for hanging.

The base needs holes drilled to let the smoke waft inside and then you simply place a tray of sawdust a little

above the base.

Next you kindle the fire and light beneath the smoker, and the smoke penetrates and filters through the food. The sawdust is not lit, but it is the heat from the fire underneath which makes the sawdust smoke. You can use various sawdusts but sawdust from evergreen trees is not usually suitable because it can give the food an unpleasant flavour.

A thermometer is useful to check the temperature. For those who wish to be more adventurous, and smoke legs

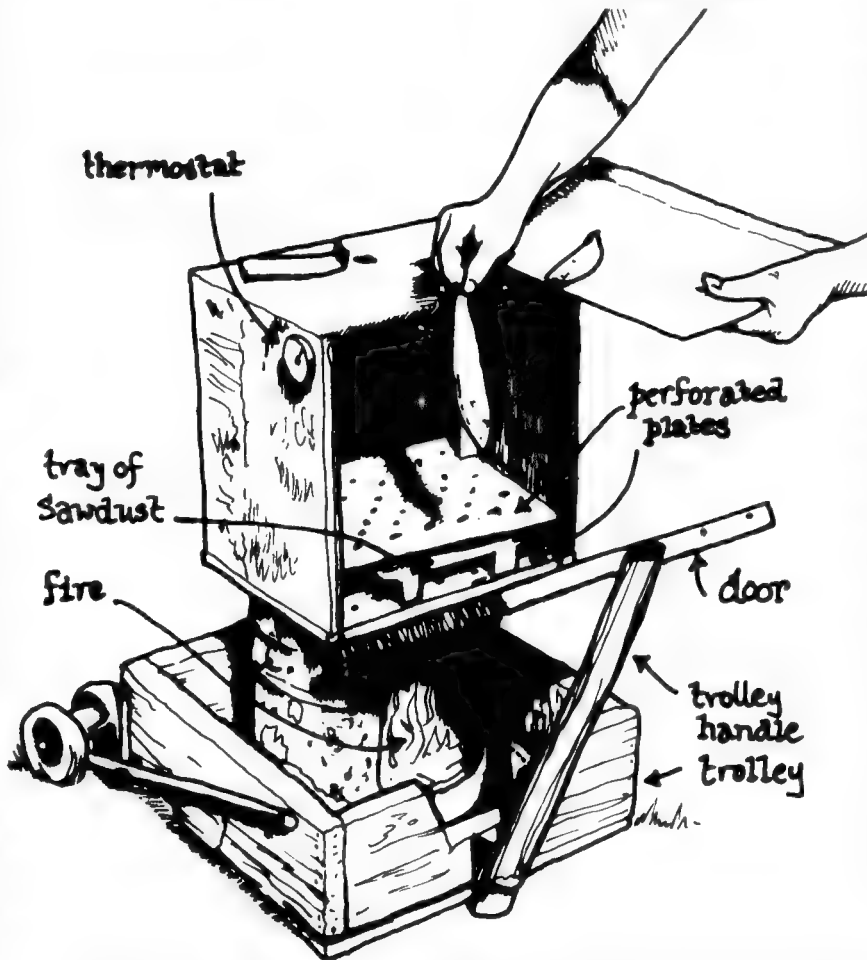
of lamb, whole chickens or a ham, you need a larger smoker. A larger metal drum, an old refrigerator, or even a strong wooden box can be modified for the purpose.

In the smoking process, the hot air partially dries the food and renders it less susceptible to decay. Food becomes rather more of a concentrate once the water content has been removed, so it is more of a concentrated source of nutrients than the same food unsmoked. Fresh meat and fish usually contain from 40 to 80 percent of water.

Home-made sausages are fun to make and smoke. You can fill

them with nourishing fresh ingredients, and have none of the cereal and fat fillers and preservatives in many commercially made sausages. If trying to fill edible plastic sausage casings, or ready bought intestines, is too much for you why not make your own casings from muslin?

Using pre-boiled unbleached muslin, cut and stitch on the sewing machine, several bags of approximately 20 cm x 9 cm. Fill with minced meats and flavourings to your own taste, and tie with string in parcel fashion. Leave a long loop one end, to hang on a hook inside the smoker.



A home-made smoker can be built from scrap. Anyone for smoked cheese?

Business with babies

by **Sophie Masson**
Guyra, New South Wales.

LAST year, in EG 51, I wrote a story about earning my living as a freelance writer. I'd like to update that because with the birth of our son Xavier, now three months old, I've had to organise my time differently. I hope my experience will be useful to other parents of small children: you don't have to be a resentful slave to your baby!

These tips are useful not only for a freelance writer, but for anybody who runs their own business. If you're employed by someone else, it's rather a different ball game, but you can adapt some ideas for your own situation.

Even though Xavier isn't my first child — his sister Philippa is five years old — the gap was wide enough for me to forget some of the things about babies. Such as: they're very demanding little people in their own right, they can't wait, they won't stay nicely and quietly asleep in their pram or cot simply because you *must* write that story or prepare that essay, or that after four weeks old, you can't really count on them to sleep during the day for more than two hours at a time. Forget those slabs of uninterrupted time you had before. And of course the problem with breastfeeding is that you can never ever have a break. You must be there to feed your pride and joy! If you have a hungry person like ours, that means lots of feeds.

So what do you do? Don't despair. And don't shelve your 'other life' because in most cases you'll end up feeling resentful and angry. Sit down and talk to your partner; set realistic goals for yourself but don't give up. Work in with your baby. In our case, Xavier has most of his sleeps in the morning. So I simply schedule all interviews and writing sessions in that slot. You don't have to wait until your baby is asleep, however, before you turn with a sigh to your work. In many cases babies will be quite happy for half an hour or more if you lie them on the floor, well-supported by a pillow or cushion, or in a baby chair, watching you or the general action in the room.

Xavier will lie for quite a while staring intently at the bright spines of books! And if your little person doesn't keep to the routine they usually do, don't tear your hair out. Try to organise your partner or older child to keep an eye on baby while you do your work. If, like many Earth Gardeners, your business is at home, you can be much more flexible than someone who has to keep to someone else's routine.

Don't become so fixated by the tasks you've set

yourself that you get really distressed if you can't do them. There will always be another day. Leave time to enjoy your baby. They won't be small and cuddly for long. I usually don't work at all during the afternoon, or at weekends: money-earning work, that is. Playing with both children, doing a bit of gardening in the sun with baby kicking on a blanket, cooking, reading books — these are activities we all enjoy.

Some people seem to think that if you don't spend *all* your time looking after your baby or child, then your offspring will become a disaster. Nonsense! Parents are people too. They need a break, or a bit of privacy just as much as when they were childless — in fact, more so. Don't hesitate to use the many excellent forms of childcare available — family day care, childcare centres, occasional care centres, and later, kindergartens. Your child will benefit by seeing other children and adults, you will benefit by enjoying uninterrupted time to work, relax, or whatever you want to do. Even babies can attend childcare once you can organise a bit of independent feeding. Perhaps once the child is having solids you can replace one of the milk feeds with a fruit juice

and solids meal, and then you can take a few hours off.

Of course, it helps if you have a supportive partner. My partner, David, goes to university all week, and so is out of the house, but he shares in caring for Xavier at all other times. On the weekend, that extra hour of sleep while he takes the baby off for his morning cereal, is invaluable for my sense of humour and my sanity. Not having to

bathe and change him in the evening also helps a great deal. Mothers usually still have the primary care of their children, especially babies — but your partner can do a lot of things to relieve some of the burden.

When your child is older, things will get easier in some ways, harder in others. Toddlers are demanding people who have to be watched almost constantly to make sure they don't get injured, or do some incredibly drastic thing such as reposition all the contents of your cupboards on the floor. But toddlers are also more self-sufficient than a baby, and can be kept occupied with toys and games. They will have a fairly regular routine by now, so it's easier to plan your time. Although it can seem difficult to keep up your work interests, it is worthwhile.

I only started writing seriously after Philippa was born: I saw then that my private time was precious, and that I should use it well. Pressure can be great for motivation! And there's the added bonus of your child being able to

"Some people seem to think that if you don't spend all your time looking after your baby or child, then your offspring will become a disaster. Nonsense!"

actually see you working. 'Working' isn't something vague, but a known, concrete thing. You don't disappear for hours at a time every day into a mythical place — 'the office', so the child grows up with a real sense of being involved, of being a part of *all* your life, not just arbitrary slices of it.

Philippa looks for my byline in the newspaper where I send regular weekly stories, as well as in *Earth Garden* and other publications. For her 'news day' at school, she was able to tell her class exactly what it was that mummy did. She was very indignant when a teacher, unused to such knowledge, suggested that I was a 'typist', imagining Philippa didn't know what a 'writer' meant. "That's silly, mum,

isn't it! I told her you wrote stories."

One thing I've noticed which can get you down, but which I've chosen to laugh about, is that many people are uncomfortable with the thought of a mother organising her time so that she, rather than her partner, earns the money. Telling the Baby Health Sister that what I 'did' was freelance journalism, I was surprised at her response. "But you do home duties too, don't you dear? I'll write home duties first," despite the fact that she only wrote 'student' next to my husband's profession (he does as many home duties as I). It was as if work at the home rather than an 'office', was not *real* work, but only pretend, only pin money.

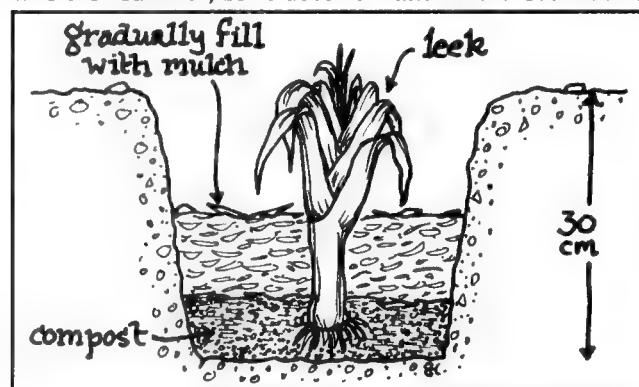
Leeks large and luscious

by Jackie French

Braidwood, New South Wales.

AT LEAST, leeks *should* be large and luscious. But sometimes it seems that only the leeks in supermarkets look large and well fed (on artificial fertilisers), and that home garden leeks are destined to be spindly.

The trouble is that leeks take a long time to mature. It's easier to get fat leeks if you sow them in spring to harvest from late summer onwards, than if you plant them in autumn for spring. Spring-sown leeks can be fertilised during the whole of summer, so it doesn't matter if the bed wasn't



The proper way to grow leeks.

prepared properly. But autumn sown leeks rely mostly on getting a good start in the autumn growing spurt — and if they don't get that they probably won't grow much till spring, when they'll suddenly shoot up and go to seed and be no use whatsoever — except for simmering up for vegetable stock.

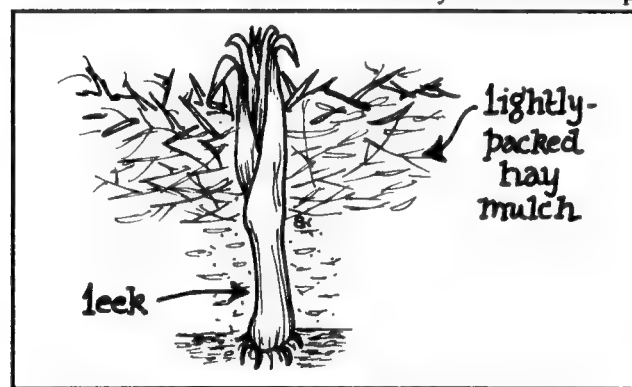
A good leek takes about six months to grow, though they can be eaten younger and smaller, and when they're more tender. But this long growing time has two advantages. You can get large leeks by growing them properly — in a well-prepared bed or compost trench — or you can just bung them in any ground available, and feel fairly confident that

the nutrients from regularly applied liquid manure and decomposing mulch will mean a good crop by harvest time.

Either way, leeks need constant feeding but the food can either be there to start with, or applied as they grow.

The 'proper' way to grow leeks — which I hardly ever follow — is to dig a trench about 30 cm deep, put a layer of compost in the bottom, and plant out your leek seedlings, or scatter the seed and thin out later. If you are transplanting cut off a third of the tops to reduce transpiration, and plant them a little deeper than they were originally. This should eliminate most transplanting setback.

Mulch them at once: leeks rarely suffer from damp-



Or you can just mulch, feed, and water (regularly).

ing off, which affects many mulched seedlings, but to be on the safe side if you are in a humid area, you can water them with chamomile tea after planting.

Water the seedlings well until they start growing again. As the seedlings grow keep applying the best mulch you have, preferably compost of lucerne hay with plenty of foliage in it. If you don't have mulch of this quality use what you do have. Give a sprinkle of blood and bone, or old hen manure or a sprinkle of *fresh* urine (stale will burn off the plants) or old urine diluted twenty to one, or liquid manure about every two weeks.

If you're not organised for a compost trench, just

mulch, feed and water as above but make sure you do these regularly. If you don't mulch you will probably still get large leeks, though you'll need more watering and weeding to compensate — mulched leeks are whiter and more tender. The trench method means the leeks are buried to a depth of 30 cm by the time they are ready — and most of these will be succulent white, with a minimum of stringy green leaf.

Pick leeks whenever you want them. They should be planted about a handspan apart, but I always plant more thickly, and eat the small ones as they need thinning. Plant enough leeks in spring to last all year. As I said, before-winter leeks are much more difficult to get to a decent size.

Leeks will tolerate quite heavy frost, although if the ground is likely to freeze it's best to cover them with loose straw at the beginning of the winter, till just the green tips are showing, to insulate them. Frosted leeks are sweeter but leeks that are continually frozen and thawed may rot.

You can delay leeks going to seed in spring by

mulching heavily while the ground is still cold. As soon as a seed stalk starts to form pick the leek. At that stage it will still be tender. In fact young seed stalks are delicious and even the older ones can be eaten if you peel off the tough skin. Slice them and use like celery.

As for eating, I love to cover them with sour cream or yoghurt, and bake them slowly in the oven, sometimes with a layer of potatoes underneath. Or sauté them with potatoes, add some stock and purée them — a classic soup. Or you can mix chopped leeks with sour cream and stuff them in a chicken, and roast it, or stir fry chopped leeks and carrots together, with just a touch of soya sauce.

You can substitute leeks wherever you'd use onions: in chutney, stews, soups, even pickle the firm white bulb. The green tops are just as edible as the base — snip off what you need with a pair of scissors, and let them regrow.

Just feed your leeks, and keep feeding them, and they'll be there, large and luscious, for your harvest.

Variety in our daily bread

by Ludwig Siegert

Maroochydore, Queensland.

IBAKE regularly and my family and my friends appreciate the freshly ground flour* because it keeps all the valuable nutrients in the rolls and bread. Besides the daily bread and bread roll there are other things to bake to bring variety to your table.

Brezel

Brezel is easy to bake and takes only approximately 60 minutes. For ten brezels use as follows.

For the dough: 600 grams freshly ground flour (wheat)
42 grams yeast
12 grams salt
400 grams (0.4 litre) handwarm water.

Plus approximately five litres of water, three teaspoons of sodium bicarbonate, and one teaspoon of salt.

Knead the dough thoroughly for ten minutes and wait another ten minutes.

In the meantime boil the water and add the sodium and salt to it. Now, roll the dough to a form of a sausage, and cut it into 10 to 12 equal pieces. Roll each to a length of approximately 40 cm with both ends becoming thinner and the middle part thicker to form the brezel. Wet both ends a little bit so it sticks better to the form. (I use milk).

Put the brezels into the boiling water and wait until they appear on the surface, then take them out and place all of them on a plate. Bake for 15 minutes at 220 degrees or ten

minutes at 180 degrees.

The brezels taste delicious with butter, so *bon appetit*.

Four grain breadrolls

For 14 rolls use as follows:

400 grams freshly ground rye
200 grams freshly ground wheat
100 grams freshly ground millet or barley
100 grams freshly ground oats
500 grams (0.5 litres) water, handwarm
50 grams yeast
15 grams salt
1 spoon of honey or sugar
(for personal taste — caraway seeds are excellent, 5 grams).

Mix and knead the dough for 12 to 15 minutes, form 14 equal rolls and put them on a plate — not too narrow — so they can rise. Make two cuts on top of the roll, cover them with a towel (teatowel or linen) and let them rise for approx 90 minutes. If the room temperature is below 25 degrees, wait another 30 minutes.

Baking time is 17 minutes at 250 degrees, or 10 minutes at 180 degrees. To give the rolls a shiny look and a special taste, brush warm coffee on top of the rolls using a soft kitchen brush, putting them back into the oven for one minute only.

**Ludwig markets stone grinders, and for more information you can write to him (enclose stamp) at PO Box 69 Maroochydore, Queensland, 4001, or phone (071) 43 43333.*

MUSHROOMS: THE GOOD, THE BAD AND THE UGLY

by Alan Thomas

IF YOU can peel a mushroom, then it's safe to eat — *wrong*. If the cooking mushroom tarnishes a silver spoon or coin — it's poisonous — *wrong again*.

Both these tests are worthless and highlight the lack of general knowledge about edible and poisonous fungi. Many people lack the confidence to identify the simple field mushroom and this is partly because there is no simple, general guide to whether or not a mushroom is toxic or edible.

The Queensland Museum has recently published a superb and comprehensive *Australian Guide to Toxic Plants and Animals* which includes a valuable section on mushrooms and toadstools.

Although most of us aren't fond of the idea of turning green with mushroom poisoning, only a small proportion of the fleshy fungi are poisonous. Some historians believe the Roman Emperor Claudius was murdered by mushroom poisoning but in Australia mushrooms are officially a 'minor' cause of death.

Just as cooking cannot be relied on to make a toxic mushroom harmless, another old furphy about animals eating mushrooms is unreliable. The fact that an animal can eat a certain mushroom with no ill effects can't be taken as proof that it's also safe for human consumption. The most dangerous of all mushrooms, *Amanita Phalloides*, is sometimes eaten in small quantities by rabbits. This once led to a rather bizarre antidote for poison victims: feeding them the fresh brains of seven rabbits chopped up with the stomachs of three! Imagine trying to stomach that lot if you were already violently ill.

In Victoria earlier this year many people contacted the Poisons Information Centre for advice on mushroom poisoning. Many had mistakenly eaten a poisonous mushroom (the so-called yellow-staining mushroom — *Agaricus xanthodermus*). This mushroom looks similar to its edible cousins, the most widely known mushrooms, *Agaricus campestris* (the field mushroom), and *Agaricus arvensis* (the horse mushroom).

With these species two simple tests can distinguish the 'good' from the 'bad and the ugly'. If the juice of the mushroom appears yellow after cooking, you shouldn't eat it. Also, you can run your thumb across the cap of the mushroom to see if it changes colour. If the bruise turns yellow after about 30 seconds, you shouldn't eat it.

The trouble with this mushroom is it looks like any field or cultivated mushroom, but it *is* slightly flatter across the top of its eight cm cap (see illustration). The stem is about six cm long and also turns yellow when scratched. Another test relates to odour: if the *Agaricus xanthodermus* are kept in a plastic bag for 15 minutes, then sniffed, you can usually notice an odour like disinfectant or iodiform. If you happen to eat them by mistake, you won't die, but you might feel like you want to.

Amanita

Up to 95 percent of all fatal mushroom poisonings are caused by the Death cap, or *Amanita phalloides*, and a single specimen can cause death. Each year in Europe and North America several people die from eating mushrooms from this group, but with modern treatment, the mortality rate has been reduced.

Fortunately, most of the 48 species of *Amanita*



Agaricus xanthodermus: a common poisonous mushroom.



Agaricus arvensis: the edible 'horse' mushroom.



Agaricus campestris: the common, edible field mushroom.

mushrooms are easy to recognise because of a combination of white gills, prominent stem ring and a loose cup or volva enclosing the base of the stem. With the Death Cap mushroom the cap is yellowish to olive green and there is a prominent volva. So far, the Death Cap has only been recorded around Canberra and Melbourne.

Another *Amanita* is the Fly Agaric, so-called because it was once mixed with milk to make a fly poison. It is the most handsome of mushrooms, with a bright red or orange-red cap flecked with white, and is the mushroom you see in fairy stories. It is found in New South Wales, Victoria, South Australia and Tasmania. Botanists call it a 'recreational hallucinogenic', which translated, means that it's a 'magic mushroom'.

Chlorophyllum

The *Chlorophyllum* is a large mushroom with a whitish cap, 10 to 30 cm across, marked with brown scales. It grows commonly in grassland areas where it can grow singly, in groups, or sometimes in fairy rings. This mushroom lands more people in hospital with severe gastroenteritis than any other.

Gyromitra

The *Gyromitra* mushrooms have a squat saddle-shaped cap, marked with contorted folds. People react differently to these mushrooms — the difference between a lethal dose and no effect can be influenced by differences in cooking methods and the amount eaten. For example, the toxin in the mushroom is gyromitrin which boils at only 87.5 °C.

This explains the old superstition about *Gyromitra* that the cook preparing them was likely to become ill, but those eating the cooked product would be unaffected.

Inocybe

The *Inocybe* mushrooms are small to medium sized forest fungi which are usually found near exotic pines. They vaguely resemble the field mushroom but have a conical cap, have no stem ring, and stain red when bruised.

Macrolepiota

Parasol mushrooms of the *Macrolepiota* genus are easy to recognise because of their large

size, symmetrical form, white gills, and prominent moveable stem ring.

Macrolepiota dolichaula which is reasonably common in Queensland, reaches a cap diameter of 20 cm and a height of 30 cm and is nearly all white. Some people can eat this mushroom with not problems, while others suffer severe stomach upset.

Morchella

Morchella mushrooms have a distinctive conical cap and are highly prized for eating in Europe and North America. They should always be cooked to avoid stomach upsets and, although there are no records of their being poisonous, there is a chance that drinking alcohol after eating may lead to violent vomiting and diarrhoea.

Pleurotus

Pleurotus nidiformis has a short stem and often forms dense clusters on decaying wood. The cap can be up to 30 cm wide and varies in colour from white to greyish-purple. At night in the forest, it is easy to find this species because of a remarkable greenish 'light'. A good specimen can give off just enough light for reading an *Earth Garden*.

Hallucinogenic fungi

Apart from the *Amanita Muscaria*, or 'Golden Top' mentioned earlier, popular types of hallucinogenic mushrooms include *Psilocybe*, *Copelandia*, *Gymnopilus* and *Panaeolus* mushrooms.

A common experience of people eating *Psilocybes* in the hallucination of having their skin peeled off.

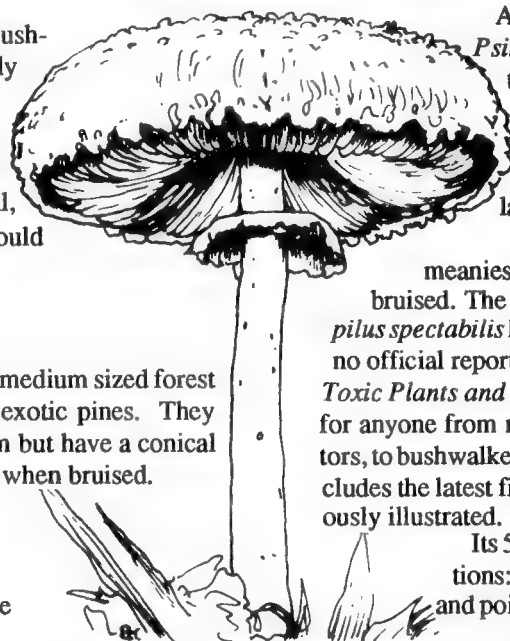
The 'Japanese laughing mushroom' is a *Panaeolus* mushroom and one effect is an uncontrollable urge to laugh and dance.

Copelandia cyanesceus or 'blue meanies' have stems which turn blue when bruised. The large golden to orange or brown *Gymnopilus spectabilis* has a bitter taste but in Australia there are no official reports of 'hallucinatory toxicosis'.

Toxic Plants and Animals is an excellent reference guide for anyone from mushroom gatherers, teachers and doctors, to bushwalkers, gardeners and students. The book includes the latest first aid and medical advice and is generously illustrated.

Its 500 pages are divided into four main sections: plants, marine and terrestrial animals and poisons information centres. It is available for \$28 posted, from The QLD Museum, Box 300, South Brisbane, 4001.

Morchella, if eaten, should always be cooked.



Macrolepiota dolichaula can be 30 cm high.

Costing an owner-built home

by Camille Thomas*

IT IS easy to underestimate the true cost of building your own home. It's also easy to accidentally mislead friends who are thinking of becoming owner-builders. You know how it happens: you forget to mention about that stupid reinforcing mesh for the slab, or that you need a registered plumber to connect the septic.

I've compiled this list from various sources: building code handbooks, Housing Ministry publications and my own experience. It is not completely exhaustive — it was originally based on costings for an average size adobe mudbrick house. Readers might like to send in appropriate additions, and next year we might publish the definitive *Earth Garden* costing list for all types of owner-built houses.

One item, which Bob Rich pointed out, is so important that I want to mention it first. Insurance is possible for

owner-builders and when you think of what can happen on a site you can quickly appreciate its value. I know of one company — New Zealand Insurance — which can cover owner-builders. This protects you, your family and friends, and you can think of it as a nice contribution to our nuclear-free neighbours.

You should take out a policy which includes these three items:

a. Public liability: if one of your friends comes up for the weekend to give you a hand with the roof battens, they could slip, and have a close encounter with the slab. Public liability won't remove the bruises but it'll pay for the physiotherapy.

b. Loss of earnings: if, like many *Earth Garden* owner-builders, you're working in your rat race job while also building your home, this will give you a measure of peace of mind.

c. Damage, theft or loss: this one's self-explanatory, but find out if it covers hand tools as well.

Preliminaries

	Builder/tradesperson Material/Labour	Owner-builder Material	Notes
1.	Drawings & specifications		
2.	Building Permit Fees		
3.	Hurdles & Set out		
4.	Temporary Power		
5.	Site insurance		
6.	Adobe brick testing (if required by building inspector)		
7.	Core sample (if required)		
8.	Water tapping fee		
9.	Supervision		
10.	Legal fees (ownership papers or mortgage papers)		
11.	Hand tools and machinery		

Excavation

1. Excavate FL
2. Dig stormwater-sewerage/
septic tank, trenches
3. Excavate all footings, pads, stumps etc.
4. Back fill & clean up site ____

Concrete works

- | | | | |
|----|------------------------|----------------|-------|
| 1. | Footings, pads & beams | M ³ | _____ |
| 2. | Concrete slab | M ³ | _____ |
| 3. | Packing sand | M ³ | _____ |

*With helpful suggestions from Bob Rich.

Item/task		Builder/tradesperson Materials/labour	Owner-builder Materials	Notes
4.	Reinforcing fabric No Sheets	_____		
5.	Trench mesh Lin-M	_____		
6.	Polythene membrane			
7.	Termite spray (if applicable)			
Bricklaying				
1.	Brick paved floor M ²	_____		
2.	Clay brick to damp course			
3.	Fire place Total No Bricks	_____		
4.	Clean Bricks			
5.	Sand & Cement M ³ _____ Bags	_____		
Frame				
1.	Stumps (Concrete/timber) No	_____		
2.	Bearers Size Lin-M	_____		
3.	Joists Size Lin-M	_____		
4.	Flooring Size Lin-M	_____		
5.	Vert Supp Posts Size Lin-M	_____		
6.	Verandah " " " Lin-M	_____		
7.	Ridge - beams " Lin-M	_____		
8.	Purlins or other " " Lin-M	_____		
9.	Rafters " Lin-M	_____		
10.	Rafter Infills " Lin-M	_____		
11.	Roof Battens " Lin-M	_____		
12.	Fascia " Lin-M	_____		
13.	Plates T & B " Lin-M	_____		
14.	Wall studs " Lin-M	_____		
15.	Vents " Lin-M	_____		
16.	Window flashing " Metres	_____		
Roof				
1.	Eaves Lining Type _____ M ²	_____		
2.	Roof Cladding Type _____ M ²	_____		
3.	Insulation M	_____		
4.	Sisalation Lin-M	_____		
5.	Roof capping Lin-M	_____		
6.	Spouting Lin-M	_____		
7.	Sky lights Size _____ No	_____		
8.	Downpipes Size _____ No	_____		
Windows and doors				
1.	S & F load bearing windows No	_____		
2.	S & F non-load " " No	_____		
3.	S & F load bearing doors No	_____		
4.	S & F non-load " " No	_____		
5.	S & F All Lintels Size _____ Lin-M	_____		
Adobe brickwork				
1.	S & L Adobe bricks No	_____		
2.	Render to Brickwork			
3.	Soil to lay and render M	_____		
4.	Bondcrete etc if desired			
5.	Reinforcing wire, ties, etc			

	Builder/tradesperson Labour/materials	Owner-builder Materials	Notes
6.			
7.	Flashings		
	Mudbrick machine hire, fuel		
Stone, timber or earth-bermed walls			
1.	Individual requirements:		
Internal finishes and joinery			
1.	Ceiling Linings	M ² _____	
2.	Wall Linings	M _____	
3.	Internal Doors	No _____	
4.	Door jambs	No _____	
5.	Skirting	Lin-M _____	
6.	Architraves	Lin-M _____	
7.	Kit cupboards, linen press etc	Lin-M _____	
8.	Fly screens to UBR's	No _____	
9.	Window glazing thickness	_____	
10.	Wall tiles inc AC Sheet	M ² _____	
11.		M ² _____	
12.		M _____	
Internal and external hardware			
1.	Post brackets	No _____	
2.	Hinges for doors	No _____	
3.	100 mm Nails	5 kg	
4.	75 mm Nails	25 kg	
5.	50 mm Nails	25 kg	
6.	40 mm Nails	1 kg	
7.	25 mm Nails	1 kg	
8.	Roofing Nails	10 kg	
9.	Entrance Lock Set	No _____	
10.	Patio Sets	No _____	
11.	Latch Sets inc furniture	No _____	
12.	Chrome Rail 19 mm	Lin-M _____	
13.	Centre Pillars 19 mm	No _____	
14.	End Pillars 19 mm	No _____	
15.	Hoop Iron Strap	Lin-M _____	
16.	Ant Caps (if applicable)		
17.	Soap Holder	No _____	
18.	Screws, Sandpaper Etc		
19.	Flush Pull	No _____	
20.	Sliding door track	No _____	
21.	Barrel bolts	No _____	
22.	Toilet paper holder	No _____	
General plumbing			
1.	Provision of hot & cold reticulation, Installation of HWS & pan connection.		
2.	Install gas appliances for LPG/ Mains gas supply.		
3.	Supply	WC & Cistern	No _____
		Bath	No _____
		Shower base	

	Builder/Tradesperson Materials/labour	Owner-builder Materials	Notes
	Trough and Cabinet		
	Kitchen sink		
	Vanity basin	No	_____
	HWS: Gas/Elec		_____
	/alternative, litre cap		_____
(if app)	Shower screens	No	_____
	Water pump/s		_____

Drainage

1. Stormwater No M _____
2. Sewerage/septic inc tank
and effluent drains No M _____
3. Sand Filter _____
4. Water storage Tanks Size _____

Electrical

1. Electrical installation to plan
specification including provision of
meters and switchboard.
2. Stove
Exhaust fans No _____
3. Meter Box
4. Solar/wind/water energy system.

Since the Ash Wednesday bushfires there have been new requirements for people hooking up to mains power in some parts of South Australia and Victoria. Underground wiring may be legally required if there are trees on your block. If you dig the trenches yourself there need not be any more outlay. (An electrician is not required if a 12 volt system is installed: time to weigh up the value of alternative power!)

Heating

1. Slow comb stove or heater/hot drum
2. Open fire/chimney access.
3. Other. _____

Painting

1. Stain all exposed woodwork
2. Priming & finishing
3. Decoration of other surfaces

Additional and special requirements

Conclusion

Preliminaries	Windows & doors	General plumbing
Excavation	Adobe brick work	Drainage
Concrete works	Stone, timber or earth-bermed walls	Electrician
Bricklayer	Internal finishes & joinery	Painting
Frame		Additional & special requirements
Roof	Hardware	Heating
		TOTAL

Controlling fruit fly organically

by Jackie French

Braidwood, New South Wales.

YES, it is possible to control fruit fly organically. It is also a lot of work but then so is any effective fruit fly control. There are two sorts of fruit fly common in Australia, the Queensland fruit fly and the Mediterranean fruit fly. Both have similar life cycles, and you are required by law to control them.

In areas with cold winters, prevention may be all that is required. The fruit fly die off in winter and garden and orchard hygiene may prevent them from building up to problem proportions till your summer crops are harvested. Even if you have fruit like citrus ripening through winter though, prevention should still be the cornerstone of your fruit fly program. Fruit fly mature mostly in fallen fruit and ripe fruit — a bad fruit fly problem is a sign of bad management — yours or someone else's. Never leave fallen fruit on the ground — pick it up every day, or better still have chooks or animals browsing under the trees to eat it. Fruit fly infected fruit often falls before it is quite ripe — and having it pass through an animal's gullet is a simple way of interrupting the breeding cycle.

Don't bury or compost fallen fruit or ripe vegetables and don't take them to the dump either. Stew it, feed it to the chooks, leave it in a sealed bucket under water for three weeks before composting, or stick it in a sealed plastic garbage bag to turn into anaerobic compost in the sun for a few days.

In bad fruit fly areas avoid early ripening crops like loquats that may attract the fly to your later crops, and avoid late maturing varieties that fruit when large numbers of fruit fly are likely to be around. Be careful too of late summer fruits like quinces, figs and medlars — they can host fruit fly

and provide a 'bridge' for the fruit fly to breed in, ready to infect winter crops like citrus. A 'fruit fly free gap' of a couple of months may be enough to save later crops from infection.

Try fruit fly repellent

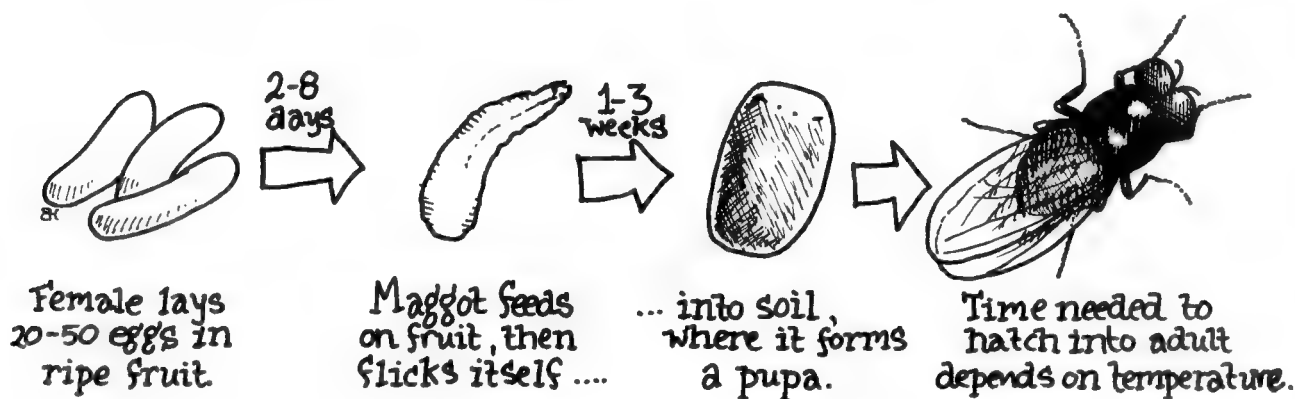
This is not strictly organic, but better than alternatives. Mix a litre of kerosene, a litre of creosote and a packet of mothballs. The result will stink. Place it in tins about ten metres apart hung from fruit trees or in the vegetable garden.

Baits

Fruit fly can fly for about a week before they mate and lay eggs. If you can kill them in this time you'll break the breeding cycle. Baits and traps are very effective, and provide the continuous control needed. Their main disadvantage is that they may attract fruit fly into your area before they normally would have appeared.

DAK pots are a commercially available trap. However, in my experience they only attract male Queensland fruit fly. The Mediterranean fruit fly is the only one active in Western Australia, and it's the female that lays eggs anyway — and one lone male surviving can cover an awful lot of territory.

Splash-on bait is made with 50 grams of sugar in a litre of water. Add 7 ml of concentrated pyrethrum or nicotine. Splash it on trees, but *don't spray* — the result will be too dilute to be effective. Apply the mixture two weeks before and one week after the known fruit fly dates in your district, or until two weeks after the last fruit has been harvested. Reapply at least every week — pyrethrum breaks down on contact with light, and the nicotine will also only be effective for a few days.



The life cycle of the fruit fly.

Open traps

Fill cans or jars with the following trap potion and scatter them around the garden. If you find dead bees or wasps in them stop, and used closed traps instead — which I prefer anyway: why poison when drowning is as effective? But for those who feel happiest when they've applied something poisonous, mix a teaspoon of molasses (not sugar of honey — molasses is less attractive to bees) with a pinch of ground pyrethrum. A few drops of yellow food colour or a drop or two of oil of citronella is supposed to make the mixture more attractive to fruit fly. Scatter this around the garden and check regularly, replacing the bait every couple of days.

Closed traps are the most effective of all

Take an empty plastic soft drink bottle, cut off the top at the shoulders, turn it around so that the spout is sticking into the bottle and tape the edges firmly. Fill the bottle a third full of

bait, cover the hole with mosquito netting, and suspend this from trees or stakes in the garden.

Alternatively, just fill a plastic bottle half full of bait, hang it spout downwards, and punch a few very small holes in what is now the top.

Baits include:

- bran, sugar and hot water
- a banana peel in water
- orange rind, human urine and water
- marmite and water
- molasses, flour and water
- marmite, banana peel, urine and water

or various combinations of the above — wet, sweet and yeasty.

Fruit fly can be controlled organically — and is done so on a commercial scale. A dislike of poisonous sprays is no excuse for not organising a control program — you'll only be adding to the problem for someone else.

Simple devices for lower voltage

by Peter van der Wyk

Nimbin, New South Wales.

I WOULD like to add a few comments and suggestions to follow on from both Patrick Howden's article (12V appliance saver) and mine, in the April/May issue of *Earth Garden* (EG 54). I want to expand on simple alternative ways of creating a lower DC voltage to run various gadgets.

Method one

In Patrick's circuit diagram for a three speed fan he has a 5W, 20 ohm and a 5W, 33 ohm resistor to provide two slower speeds. The values of the resistors need to be calculated according to the power draw of the fan and the desired speed. For example, if you want one slower speed you may calculate on using a resistor to cause a voltage drop of 6 volts, whereas if you wanted 2 speeds you may want to produce a voltage drop of 4 volts and 8 volts. You now calculate the ohms of the resistor(s) required by multiplying voltage drop by the known amperage of the appliance (which is measured with an ammeter).

This way of providing a lower voltage (as I pointed out in EG 54) is fine for universal motors which are not very voltage sensitive. This simple device can also be used for charging a rechargeable battery — with a voltage lower than the primary (source) voltage. By measuring the amps flowing once the battery and resistor are hooked up (as per accompanying diagram) you will then know at how many amps the resistor allows the battery to charge.

Method two

Using diodes to provide a voltage drop (Patrick's wiring diagram, page 30 of EG 54) is a commonly used device. Each silicone diode provides a 0.6 V drop. So, if you have a device that runs on, let's say 9 V instead of 12 V, you can use 5 diodes of the appropriate size, depending on the power draw of the appliance (for example 0.5 amps, 1 amp, 4 amps, 6 amps).

You can use a similar string of diodes separately to each device. The smaller of the silicone diodes are really quite cheap. You should then not need to bother at all with either the 1.5 k ohm resistor or the 22 ohm resistor, in fact you need have no connection from the diodes to the negative line other than the appliance. As long as the resistors remain in circuit there would be a constant power usage whether an appliance is connected or not. The 1.5 k ohm resistor would use 4 mA (1 Amp-Hour in 10 days) and the 22 ohm resistor would use about 0.3 Amps (8 Amp-Hours in 1 day). You must of course make sure that your diodes are facing the right way. If your diodes are facing the reverse direction they will block the current completely.

One problem with using diodes to provide a voltage drop is that the final voltage is directly tied to the initial voltage. As I have said in previous articles a 12 V lead-acid battery can go as high as 15 V during charging, that is to say that you can have a variation of up to 3 V.

Method three

Patrick also indicates that a commercial regulator (LM 31

It) does not regulate against current change. In the next issue of *Earth Garden* I will describe how to make a voltage regulator that will provide a steady voltage independent of current change and also independent of variations in the initial voltage (as long as the initial voltage remains higher than the final voltage).

The idea of using a separate diode to charge each of several batteries from the same charging source is also a commonly used device. It is often used in motor vehicles used for camping and long excursions. As well as the normal car battery for running the usual car electrics, you can have a second battery that can charge alongside the car battery from the same alternator or generator stationary.

By having the two batteries isolated from one another with two diodes (refer to Patrick's diagram) an excessive drain on the power and lighting battery would not affect the car battery. This means that you can use lights and watch TV at night without fear of not starting the car the next morning.

Clips, sockets and plugs

I usually provide plugs and sockets for each appliance rather than clips. Clips can get a bit messy and can sometimes cause unwanted voltage drops through a poor connection with insufficient surface area. A corroded surface on any metal acts somewhat like an electrical insulator or resistor. It is certainly not advisable to use clips directly onto battery terminals as a long term connection.

Battery connectors need to be bolted or securely clamped on with Vaseline smeared all around the connection to prevent battery acid creeping up into the connection.

It is advisable to solder all exposed wire and connections to ensure better contact.

At the end of Patrick's article he discusses a tandem driven by a 1/4 horsepower electric motor. I had an electrically driven bicycle about five years ago but found that in hilly country it was a real bother. What would happen was the battery would go flat fairly quickly when trying to climb steep hills and then I would have the extra burden of getting the lead-acid battery and motor up the hill as well as the bicycle. A larger lead-acid battery would only increase the burden both on the motor and the rider. If you lived on flat land or intended using very light weight storage batteries and a light weight motor it would be feasible.

Now, that was my opinion. I have spoken to a chap who did a similar thing to his bike and was quite pleased with the machine. He considered it worthwhile for his location. Both of us had a direct friction drive with a motorised, small diameter wheel riding on top of the bicycle tyre.

TV postscript

By the way, my pocket TV draws 0.065 amps. I must admit though that the tiny screen on the pocket TV is not as easy to watch as the 5 inch screen on the Hanimex set, but then I have a JVC 12 V TV which has a 12 inch screen and uses 0.85 amps. Equivalent sets usually use between 1 and 1.3 amps. I also use a 12 V 24 dB gain masthead amplifier which allows me to get a clear picture on 6 different channels.

TARGET: 200 MILLION TREES BY '88

Have you contributed your tree planting totals to the Bicentennial tree campaign? "Target: 200 Million Trees by 1988" is a national campaign to stimulate tree planting and record 200 million trees planted throughout Australia by 31 December 1988. It is a campaign which has been developed by volunteers and funded by donations and will be an ongoing project until Australia is reafforested to a satisfactory level. Some believe this to be 30 percent of our total land area.

by Claire Ekas

Roadvale, Queensland.

I GREW up on a property surrounded by rainforest reserve on the outskirts of Auckland, New Zealand, and later spent a number of years in Papua New Guinea. During that time I was totally unaware of any problems of tree decline anywhere in the world or the environmental

problems associated with it. It was not until we bought a farm in Queensland in 1976 that I had ever lived anywhere without trees.

From that time onwards, as a family, we have planted thousands of trees on our farm and anticipate planting thousands more each year. We have established Wharkuroogma Environmental Study Centre at Roadvale, which is 70 km south-west of Brisbane. Our programme emphasises plant propagation, tree planting, and soil conservation while students interact with trees and plants and farm animals.

The Bicentenary seemed an ideal opportunity to mobilise a national campaign which would increase public awareness of the value of trees. Since the beginning of European settlement in Australia, tree cover has declined from 15 percent to 3.5 percent now. The campaign target represents one million trees for each of those 200 years of environmental degradation.

While the 200 million trees campaign has been supporting, organising and encouraging specific tree planting activities since September 1985, our target is allowing



Brisbane volunteers planting trees with tyre guards to halt soil erosion.

tree planters and tree planting groups to experience even greater meaning in their planting as part of a national effort, and many inspirational ideas have emerged. For instance, Robertson State School* in Brisbane is challenging other schools and children's groups to plant more trees than they can by the end of 1988.

The 200 million trees newsletter is forming a network between tree planters throughout Australia. A telephone network has also been developed to record progressive tree planting totals and our latest recorded total has exceeded 35 million. As the tree total increases, the campaign is rapidly gaining momentum, and providing greater incentive and encouragement for more people to plant trees. Your tree planting totals would be a valuable contribution to this project.

We have a brochure which outlines the objectives of the campaign and we are developing a comprehensive public relations effort with television coverage, magazine and newspaper articles and radio interviews. This is helping to keep up the momentum of the campaign and increasing public awareness of the need to plant more trees in Australia as a Bicentennial project. "I'm planting 200 Million Trees by 1988 — With Help From You" is the slogan on our T shirts which are available in green on cream or white on green. These are \$8 plus \$1 postage and handling. There are also a number of videos on trees available from the Relaxation Centre of Queensland video library.

We are already receiving enthusiastic support from many councils and from groups such as the Keep Australia Beautiful Council, Men of the Trees, Greening Australia, schools, Associated Pulp and Paper Manufacturers and mining companies. We invite you to join the increasing number of people and organisations who are supporting this campaign.

We have not applied for government funding. As

we grow the costs involved in such a campaign are escalating dramatically (newsletters, posters, brochures, postage). However, we want this campaign to be achieved by people's commitment and giving. It seems important to us that individual Australians, working together in understanding their personal power to make this happen, are a vital factor for the real success of the campaign.

You can help. "Target: 200 Million Trees by 1988" is not just for those involved in its planning and implementation, it is for all Australians. By linking together, and by working together we are confident that we can and will achieve our objective by 31 December 1988. Australia needs you and we would love to hear from you. If you cannot plant a tree yourself, send us a donation and we will plant one for you.

Send your ideas, plantings and details to Claire Ekas, "Target: 200 Million Trees by 1988" Inc, The Relaxation Centre of Qld, Cnr Brookes & Wickham Sts, Fortitude Valley, Qld, 4006, phone (07) 854 1986. Alternatively, C/-Wharkuroogma Environmental Study Centre, Roberts Rd, MS 342, Roadvale, Qld, 4305, Phone (075) 63 5887.

* For more information contact teacher-project organiser, Mrs Beryl Roberts, 39 Barham St, Coopers Plains, Qld, 4108, (a/h) (07) 345 4492. A 'Robertson Tree Kids Kit for Planting a Forest' is available at the cost of \$1.

WE NEED YOUR PROGRESSIVE TREE PLANTING TOTALS!

I/we have planted trees.

Name

Address

.....

Phone Date

EARTH GARDEN

REVIEWS

Edited by Sophie Masson



'Touch for Love' Shiatsu for your baby,
Wataru Ohashi with Mary Hoover,
Angus & Robertson, \$12.95.

WERE all familiar with the concept of adult massage, but it's not only 'big people' who can benefit from a pair of gentle hands. Many Eastern cultures incorporate massage into baby care, and the word is starting to filter through to the West.

Wataru Ohashi's book details very clearly the Shiatsu art of baby massage. The text is complemented throughout with black and white photographs which show massage techniques in a visual form. The introductory chapters offer general advice on the reasons for baby massage, understanding Shiatsu, and explanations of terms.

As Ohashi points out, it is not only the child but also the parent who benefits from baby massage. Sitting down quietly with your baby and handling their naked body gently, is all conducive to a state of relaxation. He points out that babies should be massaged when they are happy, although there are some routines which are used for fretful or crying babies.

Massage is part of a general wholistic approach to baby care which can alert parents early to any problems as well as maintain peak physical and mental health. Ohashi's book is a good introduction to the art, and has sent me looking in speculation at out own baby gurgling happily in his pram!

GLORIOUS KNITTING by Kaffe Fassett,
published by Century,
160 pages of large paperback (around \$20).

THIS beautiful glossy book by Kaffe Fassett, artist turned creative knitter, shows how to make 'wearable' art — to paint with wool making unique garments. He draws his inspiration from all around him, from the shapes and colours of leaves, flowers, stones, art and tapestries.

There are some explicit patterns, but lots more ideas and

encouragement for people with average knitting skills to become adventurers. There are bold geometric patterns or subtle waterways of wool and the varying shades of undyed natural yarns.

The photographs are beautiful — a black and white reproduction couldn't do it justice. Have a look — I have seen the book in a number of bookshops and better wool shops. Knitting can be given a whole new meaning!

Irene Smith.

Jeff Toghill's Guides to the Australian Coastline — South Coast, by Jeff Toghill
Published by the New Australian Library (Hodder and Stoughton), rrp \$9.95.

THIS is the latest in a series of informative guides to the Australian coastline written by keen sailor Jeff Toghill. It is a very useful book, not only for sailors but for travellers in general, and even for residents of the regions covered.

It is well illustrated with black and white pictures. It is a guide to all the towns and settlements along Australia's South Coast and also details beaches, national parks, and places of historical interest.

It also tells of the best spots to sail, swim, surf and enjoy yourself and has a useful guide to road conditions and access.

An introductory chapter of safety warnings is a must — too many people go unprepared for the encounter with the beautiful but at times treacherous coast. Each settlement is described complete with its own 'easy guide' which includes details of interesting spots to visit.

Jeff Toghill has more than 26 years' experience working along the Australian coastline, and his is an authoritative and interesting voice.

Other books in the series include guides to the west and east coasts. Presumably the north coast will follow! A good one to take travelling.

Earth Garden Building Book by Bob Rich and Keith Smith

Available through *Earth Garden*, published by Thomas Nelson
Australia, 315 pages, large format paperback, \$24.95.

by Alan Thomas

This is the book you've been waiting for since the days when you first started dreaming about building your own house from natural, beautiful materials so that it was in harmony with its surroundings. I used to daydream, but it would falter when it came to things like — how do you fix the top plate to the final course of mudbricks? or — how would I know if the stone I want to use is suitable for the house design?

The *Earth Garden Building Book* answers all these questions and nearly any other you might have. In fact this book can let you go back to the daydreaming. Australian owner-builders have needed a book like this for many years and it's a pleasure to add it to the bookshelf. It's been described as 'a practical book for dreamers', and it doesn't duck the difficult or lengthy topics. For instance, some books will say "Oh, if you want to learn how to put the roof on — now we're at that stage — you'll have to go and buy a special builder's manual" (which is usually couched in its own special brand of jargon). In *this* book the complexities of roofing are reduced to a step-by-step sequence which is easy to follow.

Because 'mudsmith' Bob Rich and 'wordsmith' Keith Smith have written this book we know that it's going to be readable and practical. With more than 310 pages, and hundreds of detailed illustrations, you will finish thinking you can probably cope with the Taj Mahal. And as every owner-builder knows, when you're starting out, confidence is one of the vital ingredients.

What Bob and Keith have done, is to show how any person of average intelligence and reasonable health can build their own house, and probably not end up with a 25 year mortgage at the end of it all. The following are the chapter headings and give you some idea of how comprehensive the book is — some chapters have up to 16 sections.

- Planning your home
- Design
- On site
- Setting up
- Strong foundations
- From the earth
- Appendix (including an access directory, bibliography, glossary and index).
- Stone endures
- Woodworking skills
- Timber
- A roof overhead
- Doors and windows
- Creative recycling

You will love the lively and entertaining style of the book. For instance, at the start Bob Rich explains how he has distilled his experience into four laws of learner building. Laws one and two relate to the 'Second Law of Thermodynamics: the world

tends towards increasing entropy (disorder). As Bob points out, this is apparent on any building site. Laws three and four are dear to my heart. I've seen these laws proven time and again when I'm doing car repairs, working on *Earth Garden*, woodwork or mudbrick making. Third Law: 'The true cost is double your best estimate', and the fourth law is: 'The actual time taken is five times your initial estimate'.

Let me quote some lovely passages written by Bob and Keith in the book's introduction.

"This book is intended to provide an antidote to the stereotyped Australian suburban sprawl of red brick houses with red tile roofs, set squarely in a rectangle of ground.

"Neither of us was born with a silver hammer in our hands and we can still remember what it is like to learn new skills — indeed we are still learning.

"Everyone has their own bias and personal preferences. Ours are for simplicity, walking softly on the earth, caring for nature and not wasting. We are impatient with pretentiousness, conspicuous consumption and shoddy workmanship. We wish to encourage energy conservation, recycling, and the use of natural materials. We believe that people should be masters of their own destiny in building their own houses, as in other activities."

Who could put it better than that?

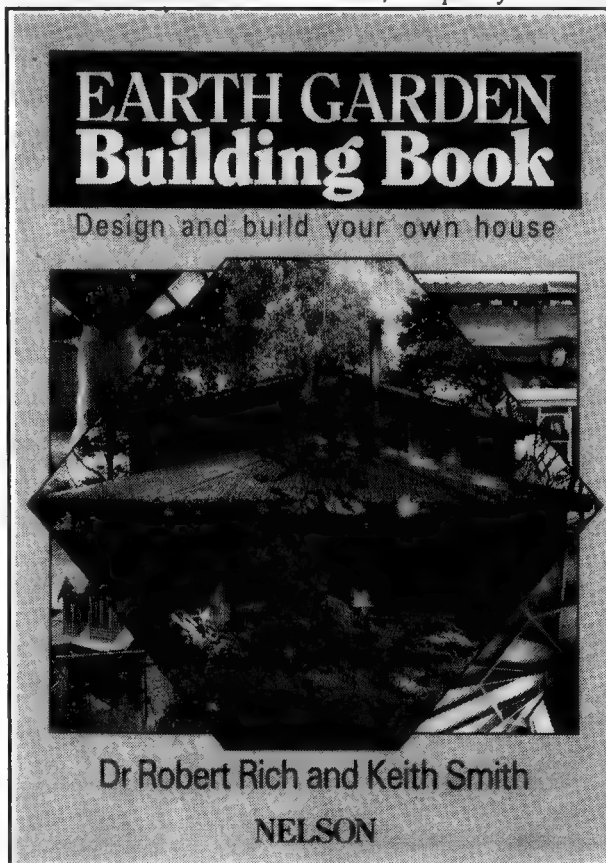
Another appealing aspect is that apparently-simple topics aren't glossed over. A few years back Camille completed a course on mudbrick building taught by Bob Rich. I remember she would come home enthusiastic with new knowledge about simple things like using a hammer. Naturally, it's all there in the book. If you thought choosing a house cow or goat took time, wait

till you read about hammers!

If you're even vaguely interested in building your own home, buy this book.

• Bob Rich used to be a research scientist with the CSIRO. Until 1972 he was told he was 'the most impractical person on earth', so he decided to learn some survival skills. He has now been teaching building for some years and, as readers know, writing on the subject. Bob lives in the Moora-Moora Co-operative Community near Healesville in Victoria and he earns his living as a 'mudsmith' handicrafting houses from timber, stone and earth.

• Keith Smith, as we know, edited and published *Earth Garden* with Irene for 15 years. What readers may not know is that Keith left school at 15 to become a copy-boy for the *Sydney Sun*. Later he worked for the *Sydney Morning Herald* and was a news correspondent for an agency in London and Saigon. He's also a lovely person. • We are now taking orders for the *Earth Garden Building Book* which sells for \$24.95. We will include postage in that cost, but please note that the first supplies will reach us in late September (the book review was based on photocopies of pageproof dye lines).





LAND LINES are for people buying, selling, seeking or sharing houses and land. It is your responsibility to check all deals. We charge a rate of 24 cents per word (prepaid) for a listing of any desired length — you can have a professionally-drawn illustration to go with your ad, taken from any old tatty photo you care to send us, for \$20 extra. All **LAND LINES** must include your name and address (phone number is optional).

LAND LINES for the October issue should be in (to PO Box 188 Moreland, 3058) by 25 September.

INGLEWOOD, QUEENSLAND. 550 acres freehold, creek, fully fenced mostly electric (solar), bore for stock and domestic purposes not for irrigation, two sheds — one liveable, large dams, good timber and all weather access. Ideal for goats or sheep. Not connected to mains power, 15 minutes to town. School bus. \$50,000 ono. Please write to B Wells, PO Box 42, Inglewood QLD 4387.

BODALLA, NSW, (1 & 1/2 hours from) and 2 & 1/2 hours from Cooma. Two secluded blocks of natural bushland and abundant wildlife, bordering national park. 60 acres undulating with frontage to Tuross River, 2 wheel drive access. Price \$49,000. 100 acres with creek frontage, short distance to river. Ten acres partly cleared with 4 wheel drive access, price \$29,000. Please contact K & E Thomson, 'Belowra' via Bodalla, NSW, 2545, phone (044) 77 9311.

NEAR KYOGLE, NORTHERN NSW. One-twentyfourth share in community and retreat centre. 1000 acres forest and pasture, permanent creeks and springs, approved development. \$15,500 negotiable, carries 5 acre dwelling entitlement and share in community house and tractor. Contact Dave (066) 62 4355 or Sue (066) 23 0600 (business hours).

FAR SOUTH NSW. One third share in 100 acres, temporary dwelling, large fenced garden, some fruit trees, dam. Good access, phone, no power. Property is half bush, half regenerated, fairly hilly, close to state forest, 30 minutes from Bega. \$15,000. Please contact Jackie Miles c/- Post Office Bega, 2550. (064) 92 7285.

EDEN AREA — In coastal hills near Victorian/NSW border, close to beaches, lakes, state forests, national parks — Two very secluded 40 acre blocks with creek, \$21,000 and \$22,500. Also 100 acres on a small river \$36,000. Ring Nancy on (047) 84 1020.

WANTED: land for small crops, bees etc, in exchange for caretaking, labour, low rent or share of profits, from early 1988. We are a reliable couple who would prefer northern NSW or QLD and are looking for a long term arrangement. Also see our letter in Earth People Write. Carolyn, PO Box 241, Woden, ACT 2606.

ARALUEN NSW, nine acres of prime undulating paddocks bordering creek, suitable farm orchard or weekender, telephone and power handy, several ideal home sites, 1 & 1/4 hours from Canberra, 1 hour from Moruya. Price: \$37,500. Telephone (062) 97 4468 or write to Adrian Lipscomb, 292 Crawford Street, Queanbeyan, NSW 2620, for details.

KANMANTOO, South Australia. 56 acres of sanctuary for sale 1 hour from Adelaide. Sheepgrazing country, moss-rocks. Magnificent winter river (Bremer). Natural springs and valley with good soil close to a permanent water hole. Stone ruins. Fully fenced. Rudolf Steiner primary & high school in Mt Barker, \$49,950. Interested persons please write to Marie Gundersen, c/- Mt Barker Post Office, SA, 5251.

WANTED TO RENT OR CARETAKE: house in peaceful bushland or wilderness, NSW preferred, modern conveniences unnecessary. Don Westlake, 75 James Scott Crescent, Lemon Tree Passage, NSW 2301.

THE LILLIFIELD COMMUNITY has 330 acres of beautiful land in the hills between Lismore and Murwillumbah. It's about fifteen minutes from Nimbin and an hour from the coast and is fully approved by the local council.

Overall, the land is owned by an incorporated company but each member has shares which give entitlement to about 5 acres for private use. In addition, members share in over 100 acres of common land which is available to all for recreation, forestry, agriculture, etc, as well as having the use of the Community Meeting House, the tractor and other equipment.

The basic framework of roads and dams has been completed and our initial membership has been established. Now we are looking for more people to help us move into the next stage of our developing community.

People who will respect this beautiful land as well as each other.

The share price of \$13,800 per household entitles you to all community facilities as well as to possession of your chosen 5 acre site.

If this appeals to you please write to: 'Lillifield', Lillian Rock, via Nimbin, 2480, or telephone (066) 89 7224.



HIDDEN VALLEY NEAR TOWNSVILLE, large block, riverstone three bedroom house, acre fenced, permanent running water, free cooking hot water, rates \$50 yearly, 99 year lease, partly furnished, new kero fridge, electric start generator, septic, 4 wheel drive, school, tavern, post office, nature lover's retirement, platypus nearby, wildlife, no neighbours, flood free, no humidity; \$40,000 negotiable. Write to R Sharp, c/- Hidden Valley Post Office 4816.

MARYVALE, east of Warwick. Two bedroom home, two years old on own hectare on community at Maryvale, East of Warwick. Power, phone, school buses. Large shed, excellent water supply, furnished: \$35,000. Write to K Bell, MS 937, Rosedale 4674.

KANGAROO VALLEY, NSW — Shareholders wanted to live in a small community on 357 acres. Land is secured, multiple occupancy application is being prepared. Women, children and families are encouraged. Shares are \$14,000 per adult. Electricity/telephone available, school bus nearby. Permaculture orchard and garden developing. Write to or phone Alec Sourdin c/- Kangaroo Valley Post Office, 2577, (044) 65 1423, Trish and Michael (044) 65 1034, or Dee (02) 439 8383.

EARTH GARDEN UNCLASSIFIEDS

BIO-DYNAMICS, an advanced organic approach to farming and gardening. For more information send name, address and 36 cent stamp to: ATEC, PO Box 110, Leura, NSW 2781.

WORK WANTED on a farm in Northern NSW or Qld. Young couple eager to learn everything about farming life. Do you need help in or around the house? We work hard in exchange for food and maybe accommodation. We would like to start straight away and could work for a short or a long time. Please write to: W Burger, c/- Post Office Sydney 2000.

OUR NAME says it all: "Fridge and Freezer, door rubber replacements". F & R Mahe, 6 Ann Street, Malanda, 4885. Telephone (070) 96 5296. Send make and model number and SAE for the exact price for your fridge. Our area is from Tully to the tip of the Cape (registered business). 10% off if you say you read it in *Earth Garden*.

MINI WORM FARM KITS. 1500+ worms, bedding, egg capsules, with full instructions in a self-sufficient breeding container allowing a continual supply for compost, gardens, bird or fish food. \$25 plus \$3.50 postage to nearest railway station. Bulk prices available on request. Sydney Worm Supplies, 1 Clanville Rd, Roseville, Sydney 2069. Telephone (02) 46 1414.

GARDENING BOOKS GALORE - Every garden book you ever dreamed of. Send for list to Plant Parenthood Books, PO Box 6, Mulgoa 2750.

WILMOT, TASMANIA — 40 mins from Cradle Mt, 35 mins from Devonport. 3 bedroom cottage plus 3.2 hectares, \$37,000. Large lock-up machinery shed and self-contained bathroom, power and water, 5.4 hectares, \$29,000. 1.6 hectares, \$15,000. 2.2 hectares, \$15,000. Facilities include country primary school, general store includes post office, sealed roads, good soil, water and power. Ring D Benson, (004) 92 1364 or write "Luvaduk" farm, Erriba, 7310.

URGENT — young family (limited funds) wanting to rent/buy cheap land within easy commuting distance to Brisbane. Also interested in renting/buying a relocatable home, a yacht, houseboat, or caravan etc (must be cheap). Please write to Russell Kefford, c/- Lot 2 Dobson Road, Clear Mountain, 4500, or telephone (07) 298 5316.

BLUE SPRINGS Multiple occupancy, Nimbin. All 36 shares sold, approved and fully owned by the group. However, several are available for resale from \$11,300 — one includes a small dwelling. Phones available, electricity on property, all weather roads, dams, school bus, etc. Phone Secretary, (066) 891121 or write to PO Box 69 Nimbin, 2480.

FOR SALE - If you would like to contribute to the growing awareness and demand for good food, then this shop can offer you a place to do that. We are serving the Blue Mountains area with organic fruit and vegetables plus a full range of natural, healthy foods. NO vitamin pills or supplements. We also stock a small range of philosophical, children's and selected books; wooden toys; handcrafted shoes and woollens. Established for three years with lots of hard work, love and care — now it's time for us to move on. \$34,000 includes SAV fixtures and fittings plus a faithful regular clientele. For information phone Marcel or Janett on BH (047) 57 3222, AH (047) 59 1294.

VICTORIAN GARDEN FESTIVAL September 30 to October 4, 1987 (school holidays), Royal Exhibition Buildings, Melbourne. Seven great shows in one! Seminars, open days etc. Details etc: phone (03) 736 1882.

LA MANCHA HEALTH CENTRE Wollongbar, 2480. For help with a health problem or a healthy holiday. Near Lismore NSW. Low rates. Phone or write for brochure (066) 295138.

FASTING for health, rejuvenation, body cleansing and weight correction — away from city smog in relaxing country retreat. Write or ring Koorungal, Three Bridges, via Yarra Junction, 3797, telephone (059) 66 7296.

EG UNCLASSIFIEDS CONTINUED ON P. 48

Earth Garden Land lines and classified advertisements are 24 cents per word. Please enclose the appropriate payment with your advertisement, to arrive by the middle of the month preceding the issue date.

AUSTRALIAN SMALL FARMS HANDBOOK. New edition now available \$12.95 (plus \$1.50 postage). Products, information, courses, associations, book reviews, calendar. Everything you need to know about farming in Australia: from organic supplies to pony clubs, deer to nuts, and solar cells to breed societies. Order from Second Back Row Press PO Box 43, Leura NSW, 2780.

HOME STONE FLOUR MILLS. Mill your own stoneground wholemeal flour for cakes and bread at home with a Retsel Little Ark Stone Flour Mill. "Endorsed by the Housewives' Association". Write for catalogues to: Retsel Distributors, PO Box 712, Dandenong, 3175, enclosing three postage stamps, or telephone (03) 795 2725. Distributor inquiries welcome.

WANTED 32 volt or 24 volt wind generator in any condition. Please send details to Keith Jacobs, Kelyn, Turill, 2850, or ring (063) 76 1156 in the evenings.

LETS GROW GARDEN CLUB. A new correspondence club, with Glen Heyne and John Mason. **BENEFITS INCLUDE . .**
 . *Newsletter quarterly *Mail order catalogue *Exclusive plant and seed collections *Workshops, courses, tours and holidays *Special discounts - books, tools, products etc. Send \$10 annual subscription to 'Lets Grow', The Garden cottage, Malmsbury Rd, Daylesford, VIC, 3460.

I would like to contact people in Victoria who are practising a self-sufficient lifestyle, with a view to visiting them. Please write to Ian Nowack, PO Box 200 Sunshine, 3020.

FRIENDS OF THE EARTH bookshop, 222 Brunswick St, Fitzroy, 3065. Australia's largest range of peace education and anti-nuclear publications. Write for details, including our new teachers' resource book 'A Peace of the Action', edited by Judy Spokes.

BOOKS & ISSUES

BOOKS EARTH GARDEN, PO Box 188, Moreland, Victoria, 3058

Earth Garden Building Book — \$24.95	\$.....
ENERGY WORKS! — \$19.95	\$.....
Third Earth Garden Book — \$5.50	\$.....
The Settler's Guide — \$15.95	\$.....
HARD TIMES HANDBOOK — \$8.50	\$.....

MAGAZINES

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The lot: EG1 — EG56 (excludes EG13) — \$97.00 (save \$60)	\$.....
Single Issues: EG1 — EG56 — \$2.75 each	\$.....

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EG2: Start a garden ... Neil Douglas ... Keyline system ... Kiewa farms ... drying and storing food ... hydroponics ... recycling garbage ... nutrition.

EG3: Herbs ... compost ... fast fertiliser ... all about goats ... mudbricks ... domes ... water wheel ... bread ... salads ... pottery ... spinning ... vegies.

EG4: The honey bee ... back to the land in Tassie ... the transition ... black sheep ... tanning ... candles ... bread ... donkeys ... a wall-hanging.

EG5: The wind ... windmills ... windpumps ... generators ... raku pottery ... Cinva ram ... poultry ... Hamburgs ... moon planting ... fallout shelter ... vegan way.

EG6: Solar 1 — sun cults ... solar cooker ... sundials ... Lost World ... Clifton Pugh ... concrete house ... Shalom ... Cajun cookin' ... horses ... spirit of Nimbin.

EG7: Solar 2 — hot water ... Mudbrick techniques ... Angora goats ... make a leather bag and belt ... mushrooms ... natural dyes.

EG8: Gas power — methane digester ... by truck to Tassie ... cumbungi hats ... Inkle loom ... candles and tapers ... country cottages ... A-frame ... school gardens ... sourdough.

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EG15: A Lytel Herbal — growing and using herbs ... text and illustrations from the classic 16th C herbals ... modern commentary ... Index to EG15.

EG16: A Lytel Herbal (Part 2) — comfrey, lavender, wormwood, yarrow ... poultry shed ... peafowl ... goats ... basic beekeeping ... rammed earth building ... hydraulic ram.

EG17: Fencing ... dry stone walls ... make soap ... nets ... pole shelter ... breeding black sheep ... The Autonomous House ... asparagus ... Aeolian harp ... ducks ... Khaki Campbells.

EG18: Fruit garden ... oranges ... lemons ... olives ... nuts ... tropical fruit ... fodder trees ... road building ... wood fired kiln plans ... Cinva-ram cottage ... sunflowers ... homebirth.

EG19: Wood heat — pot bellies ... Jotul ... cooking ... making a quid ... build a storage cellar ... bushfires ... stonefruit ... macadamia nuts ... binding your EGs ... tree planting ... budding.

EG20: Apples ... pears ... cordon and espalier ... build a haybale pig house ... pollen ... rose hips ... mudbrick flats ... solar homes ... gourds ... preserve fence posts.

EG21: Womancraft — all articles by women ... earthly arts ... axewomanship ... glove puppets ... spinning ... weaving ... easy rugs ... Sumatran house ... old roses ... Index (EG10-20).

EG22-23: Australian Access Sourcebook ... 150 pages ... Aborigines ... organic growing ... permaculture ... earth building ... wind ... solar ... water power ... technology ... water supply ... access to groups, plans, books, tools.

EG24: Place — 24 new settlers write ... Mare Carter ... Ron Edwards ... Neil Douglas ... Gundaroo Store ... Rainbow Region ... Mt Oak ... Moora Moora ... Universal Brotherhood ... bush ashram.

EG25: Australian Access Sourcebook (Part 2) — 130 pages ... livestock ... aquaculture ... fencing ... killing ... tanning ... food and nutrition ... grain grinders ... solar homes ... methane ... greenhouse ... Dorothy Hall.

EG26: The earth-built kasbahs ... owner built homes in stone ... timber ... mudbricks ... a slab cottage ... tree felling ... solar electrica ... acorns ... compost dunny ... quandong ... pumpkin recipes.

EG27: 100 tropical food plants for Australia (part 1) ... 16 legumes ... winged bean ... pigeon pea ... lablab ... cowpea ... adzuki bean ... blacksmithing ... bluestone building ... wok cooking.

EG28: Tropical food plants (part 2) ... horse and buggy ... packhorsing the Alps ... black sheep ... Merinos ... bullocks ... tamarillo ... stringybark baskets ... solar trike ... persimmons.

BACK ISSUE LIBRARY

All the back copies, from 1972 to 1986 (EG1 to EG52, except EG13).

A survival kit of self-reliance, the 'big packer' (5 kg) has 3,100 pages of practical information on growing, building, energy, household economy, livestock, craft and tucker and tales from New Settlers all around Australia.

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EG32: Year of the Tree — St Barbe Baker ... tree tales ... how a tree works ... farm tree ... native from seed ... coppicing ... Neil Douglas interview ... cob building ... log house (part 2).

EG33: Tenth anniversary issue ... timber felling ... lifting poles ... post and beam design ... log house (part 3) ... parquet floors ... backyard rabbits ... goats ... fowls ... dry pit loo ... portable henhouse.

EG34: China — communes ... trees ... fish farming ... recycling human wastes ... biogas ... transport ... travel notes ... Chinese earth building (Ron Edwards) ... rainforest ... bread and jam.

EG35: Bees and trees — tribute to St Barbe Baker ... backyard bees ... mudbrick workshop ... footings for earth walls ... make a solar collector ... magpies ... earthworms ... fodder trees.

EG36: Retn to Nimbin ... new settlers ... a woman builder ... pawpaw plantation ... solar electric systems ... potty garden ... choughs ... Peru ... lavender sachet ... biological building ... farm structures.

EG37: HARD TIMES ... making paper ... newspaper fuel ... rags to rugs ... barter ... slush lamps ... sawdust stoves ... Depression dodges ... hand grain mills ... 120 household hints.

EG38: Hard Times tucker ... bread ... soups ... yoghurt ... no-meat meals ... beer ... electric grain grinders ... Gujarati village ... mudbrick hermitage ... earth walls and bushfires ... Noel's island.

EG39: Build Peter Pedal's bike wheel wind generator ... fire without matches ... bushfire defensive house ... avocado growing guide ... rosehips ... car battery power ... farm energy ... backyard food.

EG40: Communities ... running a food co-op ... three in a caravan ... Scott Nearing's a good life ... cyder in Tasmania ... our self-built house ... earth floors ... the bitly ... olive oil ... hares ... cashew nuts.

EG41: Sahara ... Timbuktu ... Uganda ... pack donkeys ... horse float journey ... mat-tents ... build a S-rotor wind generator ... damper ... yeastless bread ... food co-op accounts ... real potatoes ... Index, EG31-40.

EG42: Earth covered homes ... Burra dugouts ... slipform stone ... the flood-defensive house ... tomato tips ... deep ecology ... build a pigsty ... EG reader survey ... the Tuareg ... Jean Pain's methods.

EG43: Earth domes and vaults ... rendering earth walls ... quarry bush stone ... bush shower ... Peter Pedals' incinerator hot water and Pelton wheel ... low voltage wiring ... sheep ... donkeys ... horses.

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EG45: Waterworks — shifting water with sun, wind and water ... solar electric pumps ... gravity feed ... hydraulic ram ... Platapump ... the cyclone-defensive house ... bunya nuts ... 12 V problems.

EG46: Windworks — wind generators ... solar trackers ... water turbines ... 12 V bilge pump ... herbal shampoo ... compost loos ... Tanzania ... the algae pond ... 12 V lights ... Krypton lamps.

EG47: Practical projects ... hanging a door ... household plumbing ... waterwheel pump ... cycling Mongolia ... the sun-pump ... livestock ... Aussie yurt ... pigeon pea ... bee tools ... Peter's pedal machine.

EG48: Bob Rich's rammed earth primer ... 1930s Dab, Pug and Pise, compost muncher ... sushi and sashimi ... Energy Pulse ... buying an energy system ... animal shelters ... hand dug wells ... ferrocement tank ... growing firewood.

EG49: Chlorella culture ... Solar Pack ... Peter Pedals' TARDIS ... just 6 volts ... Poll Hereforda ... Babaco ... Genteel frugality ... Evening Primrose ... home-made ladders ... ferrocement roofs ... building blues ... immersion heaters ... HARD TIMES hints ... Soper with Chaucer.

EG50: Land ethics ... Sustainable agriculture ... Biodynamic, Keyline, Organic, Permaculture methods ... healthy sweets ... bamboo ladder ... happy gardening ... homegrown spuds ... stone & mudbrick arches ... Earthbricks ... ferrocement tank ... poultry pyramids ... Energy Pulse.

EG51: Australian solar kit homes ... self-sufficient house ... solarium ... energy updates ... thin film solar panels ... ram & sun pumps ... two-faced stonework ... river stone & mudbrick ... earth building access ... kero refrigeration ... a shunt regulator ... vegie basics ... corn is king ... 3-ply spinning ... loo review.

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EG54: 12V solar lighting and appliances ... tomatoes ... chick brooder ... inverters for 240V appliances for solar systems ... boring for water ... festivals.

In our last issue

EG 55: Mudbricks from heavy clay ... Managing plant diseases ... Building a baby's cradle ... A biodynamic farm ... Making cider ... A hot drum warning ... Making a solar control board ... Owner-builder apprenticeship ... Thoughts on solar retailing ... Thyme.

TOXIC PLANTS & ANIMALS

